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THE ECONOMIC ANNALIST

A BIMONTHLY REVIEW OF AGRICULTURAL BUSINESS
MARKETING SERVICE, ECONOMICS DIVISION,
DEPARTMENT OF AGRICULTURE, OTTAWA

Published by Authority of the Right Hon. James G. Gardiner, Minister of Agriculture

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J. F. BOOTH, Chief

FEBRUARY 1956 Vol. XXVI, No. 1

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ANNUAL AND MONTHLY INDEX NUMBERS

WHOLESALE PRICES, FARM PRICES AND LIVING COST INDEXES

Year	Wholesale Prices 1935–1939=100				Farm Prices of Agricultural Products 1935–39 =100 (e)	Commodities and Services used by Farmers 1935–39=100		Consumer Price Index (1949 =100) (h)	Food Index (1949=100) (i)	Index of industrial production (1935–39 =100) (j)
	(a) General Wholesale Index	(b) Farm Products	(c) Field Products	(d) Animal Products		(f) Equipment and Materials	(g) Composite Index			
1913	83·4	....	....	....	....	85·4	....	49·2	44·4	....
1914	85·4	....	....	....	....	90·2	85·3	49·6	46·0	....
1915	91·8	....	....	....	....	96·9	91·6	50·3	46·8	....
1916	109·8	....	....	....	....	101·7	100·5	54·2	51·8	....
1917	148·9	....	....	....	....	140·7	140·5	63·7	66·9	....
1918	166·0	....	....	....	....	164·1	160·2	72·0	76·9	....
1919	174·7	....	....	....	....	169·1	167·9	78·8	82·2	....
1920	203·2	....	....	....	....	190·1	186·5	90·5	94·4	....
1921	143·4	....	....	....	....	147·4	152·5	80·9	72·5	....
1922	126·8	....	....	....	....	124·6	134·1	74·9	61·5	....
1923	127·7	....	....	....	....	118·3	130·6	75·2	61·9	....
1924	129·5	....	....	....	....	122·3	131·9	74·0	60·7	....
1925	133·8	....	....	....	....	123·2	131·8	74·6	63·4	....
1926	130·3	144·4	158·5	130·2	....	119·9	130·6	75·9	66·6	....
1927	127·3	138·6	149·4	127·8	....	119·9	131·2	74·6	65·3	....
1928	125·6	136·3	134·3	138·2	....	118·3	129·3	75·0	65·6	....
1929	124·6	140·8	137·2	144·4	....	117·6	127·9	75·8	67·1	....
1930	112·9	119·5	105·8	133·3	....	105·6	117·0	75·3	65·6	....
1931	94·0	78·9	65·0	92·7	....	92·2	100·9	67·9	51·4	....
1932	86·9	65·5	60·4	70·5	....	89·3	93·3	61·7	42·8	....
1933	87·4	69·3	69·3	69·2	....	88·8	89·8	58·8	42·3	....
1934	93·4	83·5	80·5	86·5	....	96·8	95·5	59·6	46·2	....
1935	94·4	89·2	84·4	94·1	88·0	95·6	95·4	59·9	47·2	85·6
1936	96·8	97·9	102·2	93·7	96·9	98·7	98·1	61·1	48·8	94·6
1937	107·7	117·4	128·9	106·0	119·7	108·4	105·3	63·0	51·4	108·0
1938	102·0	102·9	100·9	104·8	105·0	101·2	101·7	63·7	51·7	102·0
1939	99·2	92·6	83·7	101·5	91·8	95·7	99·3	63·2	50·2	109·7
1940	108·0	96·1	85·4	106·7	96·8	101·8	106·8	65·7	52·6	131·4
1941	116·4	106·6	88·9	124·4	110·2	107·8	116·1	69·6	57·9	164·8
1942	123·0	127·1	109·7	144·6	133·1	119·2	131·6	72·9	63·4	195·7
1943	127·9	145·4	129·0	161·8	157·8	122·4	143·4	74·2	65·2	208·5
1944	130·6	155·3	144·5	166·1	172·4	126·0	148·0	74·6	65·5	212·4
1945	132·1	166·4	162·5	170·2	185·7	125·9	152·1	75·0	66·3	187·2
1946	138·9	179·5	177·9	181·2	204·1	128·0	157·0	77·5	70·0	171·9
1947	163·3	192·2	184·1	200·2	215·8	139·5	170·4	84·8	79·5	187·8
1948	193·4	232·1	200·6	263·7	255·8	173·1	197·6	97·0	97·5	196·3
1949	198·3	228·7	191·9	265·4	255·4	180·3	204·1	100·0	100·0	199·6
1950	211·2	236·7	191·9	281·4	260·8	189·9	210·4	102·9	102·6	211·5
1951	240·2	268·6	200·4	336·9	296·8	206·0	230·0	113·7	117·0	226·5
1952	226·0	250·2	223·0	277·5	274·4	215·8	243·1	116·5	116·8	233·0
1953	220·7	221·6	179·4	263·8	250·4	207·4	239·8	115·5	112·6	248·4
1954	217·0	210·6	164·9	256·2	233·6	203·3	237·2	116·2	112·2	244·6
1955	....	....	....	....	....	....	....	116·4	112·1	....
1954										
Sept.	215·3	205·1	164·6	245·5	227·9	....	....	116·8	113·8	253·7
Oct.	214·3	202·1	163·7	240·5	220·4	....	....	116·8	113·8	256·0
Nov.	214·9	204·6	166·0	243·1	219·8	....	....	116·8	113·4	254·4
Dec.	215·4	205·7	165·4	245·9	220·3	....	....	116·6	112·6	240·6
1955										
Jan.	215·7	207·4	166·4	248·4	221·3	205·8	231·8	116·4	112·1	238·2
Feb.	217·4	207·1	168·4	245·8	222·5	....	....	116·3	111·5	248·0
Mar.	217·4	204·1	166·9	241·3	221·3	....	....	116·0	110·7	251·9
Apr.	218·5	213·1	187·6	238·7	228·2	204·7	240·3	116·1	111·0	259·2
May	217·8	213·7	184·0	243·4	229·2	....	....	116·4	112·3	267·4
June	218·7	212·5	175·0	250·0	229·7	....	....	115·9	111·0	276·8
July	218·4	210·1	170·8	249·5	229·6	....	....	116·0	111·5	263·7
August	219·6	204·8	159·0	250·6	225·9	203·3	241·3	116·4	112·4	271·6
Sept	220·9	202·7	153·9	251·6	226·3	....	....	116·8	113·7	280·8
Oct.	220·0	196·8	151·7	241·9	220·7	....	....	116·9	113·5	283·6
Nov.	220·7	196·9	153·2	240·5	220·8	....	....	116·9	113·0	....
Dec.	221·4	197·1	155·2	239·0	....	....	....	116·9	112·4	....

(a) Canada. Dominion Bureau of Statistics, Labour and Prices Division. *Prices and Price Indexes.* Ottawa, Monthly.
(b) Ibid. (a). Wholesale prices of products of Canadian farms.
(c) Ibid. (a). Wholesale prices of grains, hay, tobacco and potatoes.
(d) Ibid. (a). Wholesale prices of animals and animal products.
(e) Canada. D.B.S., Agriculture Division. *Index Numbers of Farm Prices of Agricultural Products.* Ottawa, Monthly.
(f) Canada. Dominion Bureau of Statistics, Labour and Prices Division. *Price Index Numbers of Commodities and Services Used by Farmers.* Ottawa, Jan., Apr. and Aug. Includes prices of commodities in 8 groups including farm implements, building materials, gasoline, oil and greases, feed, fertilizer, binder twine, seed and hardware.
(g) Ibid. (f). Includes the 8 commodities indicated above plus tax rates, interest rates and farm wage rates.
(h) & (i) Canada. Dominion Bureau of Statistics, Labour and Prices Division. *Prices and Price Indexes.* Ottawa. Monthly.
(j) Canada. Dominion Bureau of Statistics. *Canadian Statistical Review.* Ottawa. Monthly.

THE ECONOMIC SITUATION

The Agricultural Outlook for Canada in 1956[1]—The present international economic outlook is, on the whole, favorable. The level of economic activity in most countries is continuing to rise and in North America especially, the expansion appears to have a broader basis than a year before. There has been a strengthening of world prices for most industrial raw materials. On the other hand, world prices of many agricultural products have continued to show weakness during the past year.

The strength of the world-wide expansion has resulted so far in remarkably little price inflation, although signs of inflationary pressure have been on the increase in recent months, especially in certain overseas countries. The volume of world trade has increased substantially without the reappearance of any general disequilibrium in world payments, though certain countries have encountered renewed balance of payments difficulties. It is an encouraging sign that most of these countries have dealt with their foreign exchange problems by using internal measures rather than by intensifying import restrictions. Canadian trade has benefited from the buoyant economic conditions. In the first nine months of 1955 both exports and imports have been greater than in the same months of 1954. However, as a result of a larger rise in imports, Canada's trade deficit has been slightly greater in 1955.

The United States has been continuing its agricultural surplus disposal activities and there has been concern in Canada about the effects of this policy on Canadian trade, especially with respect to wheat. Steps have been taken for inter-governmental consultation on this problem.

During 1955 the Canadian economy showed substantial growth. Residential construction was at much higher levels than in the previous year. Export trade, industrial production and personal income were all greater than in 1954. The general attitude of business appears to be one of confidence for 1956.

Some further increase in exports to the United States is expected. The United Kingdom has instituted monetary and fiscal measures in an attempt to correct its balance of payments difficulties but these are not expected to cause any appreciable change in the level of sales to that country in the coming months.

The economic conditions expected next year in Canada and the rest of the world should be favorable to Canadian agriculture. Farm cash income will probably be about the same as in 1955. Farmers' deliveries of grains are unlikely to vary much from those of 1955. If only an average crop is produced, marketings could be maintained by a liquidation of the present large quantities of farm-held grains.

Cash income from the sale of livestock, eggs and dairy products is not likely to be greatly different. Since income in kind and operating expenses are likely to be about the same, the level of farm net income relative to that of 1955 will be largely determined by changes in the value of inventories brought about by changes in the size of the grain crop.

The demand for farm labor in 1956 is likely to be somewhat higher than in 1955 whereas the available supply of workers is expected to be lower. There will be a surplus of farm labor during the winter months except in dairying and stock farming. Regional shortages of experienced farm workers may be expected during peak periods of seeding and harvesting activity. It will again be necessary to organize movements of workers to deficit areas to meet peak seasonal demands for farm help. The recruitment of experienced immigrant agricultural workers on an increasing scale will be desirable.

Commercial cold storage facilities have increased about six per cent during 1955 and are expected to continue increasing during 1956. The volume of freezer products stored will likely continue high but cooler capacity will be adequate in most areas. Rental of frozen food lockers will continue at about the same level in 1956 as in the previous four years. However, the use of home freezers is increasing steadily.

World production of wheat in the 1955-56 crop year, estimated at 7·3 billion bushels, is about six per cent above last season's crop and only slightly below the record 7·4 billion harvested in 1952-53. Stocks available for export and carry-over held by the four major wheat exporters in the fall of 1955 were running about five per cent higher than in 1954. Larger stocks in the major exporting and in some importing countries are making the marketing of wheat more difficult but, despite this situation, it is believed that exports of Canadian wheat should be fairly well maintained during the current crop year.

---

[1] Based on statements presented at the annual Federal-Provincial Agricultural Conference held in Ottawa, December 5-8, 1955.

Production of wheat in Canada in 1955 was estimated at 494·1 million bushels, virtually the same as the July 31 carry-over of 493·7 million bushels of old-crop wheat. At October 1, 1955, stocks of Canadian wheat available for export during the remainder of the crop year and for year-end carry-over amounted to some 786 million bushels compared with 697 million available at the same date a year previously. The 1955 crop is generally of good quality, with slightly more than 90 per cent expected to grade No. 1 to No. 4 Northern. As a result of this good-quality crop, together with quantities of low-grade wheat available from the 1954 crop, Canada is in a position to supply the market with a full range of milling and feed grades during the current crop year. Domestic disappearance of wheat during 1955-56 is tentatively estimated at 160 million bushels compared with 165·2 million in 1954-55.

Total supplies of Canadian feed grains in 1955-56 are up about ten per cent over last year's level and about 22 per cent above the ten-year average. The increase in this year's supplies results largely from substantially greater outturns of oats and barley, a record corn crop, and a next-to-record crop of mixed grains. However, feed requirements will likely be somewhat higher than in 1954-55 because of the four per cent increase in livestock population. It is expected that the export market for both oats and barley will be fairly well maintained during 1955-56 although the totals may not reach the 1954-55 levels. In view of substantially greater supplies and the possibility of somewhat reduced exports, it is probable that carry-over stocks of oats and barley at July 31, 1956 may show some increase despite greater domestic requirements.

The outlook for 1956 is for heavier marketings in all classes of meat animals except sheep and lambs. Hog prices are not expected to show much improvement over those prevailing in the fall of 1955 in either the United States or Canada, except for the usual seasonal rise during the summer. Cattle prices are expected to be slightly lower.

Marketings of cattle, not including feeders returned to country points, will likely exceed the 1955 figure by about five per cent and equal the record established during the Second World War. This will provide the bulk of the increase in total meat supply. If history repeats itself, cattle numbers will reach the peak of the third cycle since 1928. Calf marketings are expected to increase moderately over 1955 and reach a new record. Most of the evidence points to another big year for hog production. Marketings of hogs are expected to be near the six million mark, an advance of less than two per cent over 1955. Most of this increase will come during the first half of the year. There is little to indicate any important change in sheep and lamb marketings which, given good lambing weather, will likely be about the same as in 1955.

A larger population and a continued high level of consumer demand, coupled with somewhat lower prices, should induce an increase in domestic disappearance of meat great enough to offset the additional production that is expected. Domestic disappearance of beef, veal and pork are all expected to rise with production and any changes in the disappearance of mutton and lamb will likely depend on the amount imported. Exports of both live animals and meat in 1956 should be about the same as in 1955.

Milk production in 1956 is estimated at 17·5 billion pounds, the increase over 1955 reflecting an anticipated further small rise in numbers of milk cows on farms. As in other recent years most of the milk will be used to produce dairy products for the domestic market. More than half of the additional milk that is expected in 1956 is likely to be absorbed in the fluid milk market.

During 1956 production and consumption of creamery butter and cheddar cheese are likely to be very nearly in balance. The rapid expansion in demand for concentrated milk products during recent years is expected to lead to a record production of evaporated whole milk and dry skimmed milk. A continuing favorable export demand for dry whole milk may result in a record output of this product.

During the first four or five months of 1956, egg marketings are expected to be lower than in the corresponding period in 1955, but should exceed current consumption slightly. The egg price outlook during this period will be determined by how attractive storage operations appear to egg distributors. If the laying flock replacement hatch is early and large, storage operations will not be attractive. This development would exercise a depressing influence on egg prices. A small early hatch on the other hand, would exercise a buoyant influence on prices. The level of egg prices in the second half of 1956 will depend largely on the timing and size of the 1956 hatch.

More poultry meat may be produced in 1956 than in 1955 and can be attributed to continued expansion of the commercial broiler industry and a larger turkey crop. Poultry prices in 1956 are not expected to differ greatly from those of 1955; larger supplies and competition from other meats are expected to offset the influence of a continued strong demand.

A record crop of 19·4 million bushels of apples was produced in 1955. Such a large crop exerted considerable downward pressure on prices during the fall and early winter. Domestic consumption increased and fresh exports in 1955-56 are expected to exceed the quantity exported during 1954-55. The trees have gone into the winter in good condition and the 1956 crop may also be above average. Larger crops of apricots, cherries, peaches and pears may be forthcoming in 1956 if weather conditions are favorable.

The 1955 potato crop was larger than that of 1954 because of a three per cent increase in acreage and a 19 per cent increase in yield. A larger crop was also produced in the United States in 1955 than in 1954. As a result of the heavy supplies in North America, potato prices during the first half of the 1955-56 crop year were below those in the corresponding period in 1954-55. They are expected to firm as the season advances. Past experience suggests that the acreage planted to potatoes and the yields obtained in 1956 may be smaller than in 1955.

Production of all types of tobacco in 1955 amounted to 122·2 million pounds re-dried weight, a decrease of almost 27 per cent from the record 1954 crop. Stocks totalling 176·6 million pounds at September 30, 1955 were the largest on record and this equals 19·6 months' supply. At current rates of consumption, stocks on September 30, 1956 should equal about 16 months' supply, which is slightly below normal.

Exports of 1955-56 supplies are not likely to exceed 35 million pounds, about 11 million pounds less than in 1954-55. It is likely that Canadian manufacturers will use about 113 million pounds out of 1955-56 supplies.

Production of registered and certified cereals, flax and hybrid corn was the largest in several years and there should be adequate supplies of the popular varieties of these kinds to meet domestic needs in all areas. There is an active demand for Selkirk wheat and some popular varieties of oats in the United States.

With few exceptions, estimated production of most of the principal forage crop seeds in 1955 was practically unchanged from that of 1954 with smaller than usual crops of alfalfa, red clover and brome grass. Production of timothy seed was the largest in history, estimated at 24 million pounds. Relatively large crops of alsike, sweet clover, crested wheat grass and creeping red fescue seeds were also produced.

In contrast to widespread shortages of several kinds in 1954, surpluses exist in the United States and Western Europe, causing a weak export market for Canadian seeds with prices reflecting this situation. Prices to growers for nearly all kinds are lower than a year before.

Flaxseed supplies for 1955-56 are at near record levels, and exports are expected to absorb the greater part of the quantity available. A strong demand for linseed oil has stimulated flaxseed prices during the past year, and no decline is in sight. Soybeans and husking corn both attained new levels of production in 1955. The price of these crops has been lower than in 1954-55, a reflection largely of lower prices in the United States, where our imports originate.

As in 1955, the acreage to be seeded in Western Canada in 1956 for several of the special crops, flaxseed and rapeseed in particular, may be expected to increase, partly owing to the fact that these crops are not subject to delivery quotas.

ORGANIZATION OF FARM MACHINERY CO-OPERATIVES IN NOVA SCOTIA

G. C. Retson and V. A. Heighton.

The tractor clubs of Nova Scotia own and operate farm machinery for their members. Co-operative arrangements enable a group of owners of small farms to purchase and operate machinery which would generally be too expensive for each member to buy and operate individually.

There are many problems associated with the organization and operation of a farm machinery co-operative. Those relating to the size of the co-operative itself and the selection of members were discussed in a previous article.[1] Here, the discussion will continue with a review of matters concerning club officers, by-laws, selection and purchase of machinery, and financing methods.

Officers.—The officers of a tractor club generally consist of a president and a secretary. The secretary keeps the records and is responsible for the collection and payment of accounts. A successful club invariably has an efficient secretary who assumes general responsibility for the management of the club. The nature of the responsibilities and the amount of work done are factors to be considered in deciding if the secretary is to receive a salary and the size of that salary.

Most tractor clubs hire an operator. He is usually but not necessarily a member of the club; he is responsible for the care, maintenance and operation of the equipment. Large clubs often have one or more assistant operators. Many clubs, however, find it difficult to secure competent operators at the time when their services are required. As this type of job is of a part-time nature, operators sometimes complain that there is not sufficient work to make it worthwhile. In some of the smaller clubs the equipment is operated by the members themselves; when the members live on farms located at not too great a distance from one another this type of arrangement often works quite satisfactorily provided one of the members assumes full responsibility for the care and maintenance of the equipment. When the members' farms are scattered over a rather wide area, control becomes difficult and oftentimes the equipment deteriorates because of neglect to provide adequate care and maintenance.

By-laws.—All clubs have written by-laws which include a general statement of club policies, duties of officers and general regulations governing the use of equipment. There is a general tendency to simplify procedures. The preparation of work schedules and time limits on the use of equipment as specified in the initial by-laws of many of the clubs are usually discontinued and replaced by informal arrangements. Officials consider that regulations or by-laws are of little value when members fail to see the need to adhere to these regulations.

Because of their scattered membership, variations in farm size, and conflicts among members over the use of equipment the larger clubs place great emphasis on the organizational aspects of co-operative agrrangements. Their by-laws are usually drawn up in greater detail than those of the smaller clubs; part of the administrative work is done by the operator himself; and some clubs have very efficient secretaries who give their best efforts and talents and much of their time to club work. In some clubs, however, too great a responsibility may devolve on only one or two officials. This situation enables the club to draw fully on the special abilities of one or two members but, on the other hand, may tend to prevent other members from acquiring the administrative training necessary for continuity in the democratic administration of a co-operative association. The operations of a club which is kept going mainly because of the leadership and active interest of one or two individuals are likely to be seriously disrupted when this club loses their services.

---

[1] *See Farmers' Experience in Co-operative Ownership of Farm Machinery in Nova-Scotia* The Economic Annalist, August 1955.

Selection of machinery.—At the beginning of its operations a club usually purchases a tractor, a plow, and a set of harrows. Some time later it may buy threshers, binders, mowers, wood saws, trailers, potato diggers and various other kinds of machines. About one-third of the tractor time is spent on plowing and members generally agree that this is the operation best suited to the co-operative use of farm machinery. In general, the small clubs have a wider range of equipment than the larger ones. Many small clubs own haying equipment and find it easy to handle successfully. The large clubs, on the other hand, confine their purchases mainly to items such as plows, harrows, threshers and wood saws, timeliness being of less importance in the use of these than in that of some other machines.

Clubs follow a conservative buying policy and usually secure the approval of all their members before making a purchase. This policy does not prevent a small group of members within the club from joining together to purchase special items of equipment which are sometimes made available to other members on an exchange or custom basis. Some members complain of a tendency to buy machines which are too heavy for the work done on many of the farms. There are cases where the equipment is purchased on the basis of total acreage rather than in accordance with the type of farm for which the machinery is intended. The total farm acreage looked after by some clubs may be quite large but the farms of some individual members may be rather small in size. These farms have small and irregular fields better adapted to light and maneuverable than to heavy machines.

Purchase of Machinery.—In some clubs the members provide the funds necessary for the purchase of machinery on a cash basis. The general practice, however, is to buy "on time", using dealer or bank credit or loans provided by a sponsoring organization. In some cases purchases are financed with funds accumulated as depreciation or special maintenance reserves. Some clubs face difficulties when individual members are unable to meet their payments. These clubs are strongly convinced that all purchases should be made on a cash basis and that, when necessary, individual members should secure credit from outside sources.

Prior to making the equipment available for service to the members, charges must be established for the use of the machines. Clubs generally commence operations with a system of hourly rate charges. As time progresses a great deal of variation is introduced in the rates and procedures used in financing operations.

Financing Methods.—The payment of a small membership fee would help defray the expenses required in establishing a club and getting the machinery ready for operation. However, none of the clubs levies membership fees.

Club operations are financed through the purchase of shares by the members and charges made for the use of the equipment. Shares are usually of the same value for all members, a policy which gives rise to some dissatisfaction. The members who make a smaller use of the equipment are likely to believe that they receive less for their investment than those who make a greater use of that equipment.

One of the larger clubs attempts to obviate dissatisfaction or dissension by basing the amount paid for shares on the size of the member's farm. Three men are appointed to a Board whose duty it is to calculate the amount to be paid by each member. The amount is based on a revision of the municipal assessment which excludes non-agricultural property from that assessment.

One of the problems facing a newly organized farm machinery co-operative is the determination of the rates to be charged for use of the machinery. These charges provide the funds needed to operate the equipment and defray other expenses and play an important role in the success or failure of a co-operative. Data secured in the study of tractor clubs in Nova Scotia indicate a wide variation in rates and procedures used in establishing these rates.

Manufacturers of farm machinery and Departments of Agriculture collect data on the cost of operation of various types of farm machines. These data, and the rates currently charged by custom operators, provide a basis for the setting of initial charges for the use of the machines. The rates for rented equipment are generally set sufficiently high to cover fuel, oil, repair and other operating costs and to allow a charge for depreciation, interest and payment for the time of the operator.

Rates for the use of the machines are usually on an hourly or on an acre basis. The "per acre" basis is often used in areas where fields are large and fairly uniform. The farmer likes it because, at the time when he hires the equipment, he already knows the total amount which he will have to pay. For the machinery co-operative, however, the hourly rate may be more satisfactory; it makes allowance for variations in types of land and is thus likely to be more closely related to the actual cost of operations.

Tractor clubs organized during the 1944-52 period commenced their operations with hourly rates generally comparable to those charged by custom operators. Rates for plowing and harrowing, usually the major operations performed, ranged from $1.50 to $2.00 per hour. There was a tendency to charge the same rate for most other operations; however, the rate for wood-sawing was usually 50 cents lower than that for plowing, and rates were higher for those operations which required more expensive equipment. For threshing the rates were on an hourly or on a bushel basis. For custom work they were usually 50 cents higher per hour than the rates charged to members.

Rates included a charge for the operator as well as for the tractor and other equipment. Payments to operators ranged from $0.50 to $1.00 per hour. Initially all power equipment was operated with the club tractor. Later, as some of the members acquired their own tractors, separate rates were established for the use of equipment, with or without the club tractor. In some cases no charge was made for time spent in moving the equipment to and from the farm although the operator was usually paid for such work. In one club an additional quarter hour was added to time spent per farm on each operation to cover time in transit. As time passed some clubs continued to operate with only slight variations in hourly rates. In most cases, however, considerable variation developed in rates and in the procedures followed in financing operations.

During the first few years of operation, the initial rates set by the clubs were generally high enough to meet the costs. In later years, however, as the equipment became older the costs tended to increase. This occurred at a time when prices, generally, were also rising rapidly. The clubs which did not increase their rates sometimes found themselves with insufficient revenue to finance operations and provide adequate maintenance. Some clubs had to contend with delinquency problems. As the equity in club equipment of a delinquent member was usually sufficient to cover his indebtedness there was a tendency to let the matter drag on in the hope that he would somehow be able to meet his obligations. Because of poor collections in their early years many of the clubs also incurred substantial losses on custom operations.

Another source of financial difficulty was the purchase of equipment, or other kinds of expenditures, with funds which should have been earmarked for depreciation or maintenance reserves. Members generally disapproved of sinking funds or reserves, the usual comment being that there was little point in having money lie idle in the bank when it could be used at home. From the point of view of replacement of worn-out equipment this argument had some merit. The average life span of club equipment was about 10 to 15 years, and there was always the possibility that a member might not be able or wish to retain his membership beyond that period. The inclusion of depreciation and interest charges to provide a fair allocation of costs between farms which differed widely in their use of equipment was generally overlooked in the desire to keep rates at as low a level as possible. In some cases this was carried to the point where equipment suffered through lack of adequate maintenance.

Financial difficulties, and especially those associated with collection, often placed a heavy load on club secretaries, few of whom received any remuneration. In order to reduce bookkeeping and administrative work there was a tendency, particularly in the smaller clubs, to replace hourly rate charges with a more simple type of procedure. The members would for example, operate the equipment themselves and provide fuel and oil for the tractor, when used on their farms. These procedures may be better illustrated by a description of the methods followed in some clubs.

In club A, equipment was operated largely by the members. For convenience much of it was stored on the centrally located farm of one of the members. This farmer was in charge of the equipment and assumed responsibility for seeing that it be kept in good working order. He was often available for employment and spent a considerable amount of time operating the equipment; having the equipment on his farm was considered an advantage and he received no remuneration from the club.

Equipment was available at the central point and the tractor was filled with fuel and oil. As each member completed an operation he was required to return the equipment with the tractor refilled with fuel and oil. Repairs, oil changes, grease, and other operating costs were looked after by the operator and paid from a fund contributed by the members on an equal basis. The amount of this fund was estimated by the secretary and usually collected at the annual meeting. By having members provide fuel and oil and operate the equipment, bookkeeping and other administrative work was substantially reduced.

A variation of the above plan existed in club B. Here the equipment was stored on the farm of the secretary and the latter assumed responsibility for maintenance. Members operated the equipment and provided fuel and oil as in club A. The secretary kept a record of oil changes and grease jobs and as these came due they were provided by the member on whose farm the equipment was in operation. Other maintenance costs were calculated by the secretary and charged on an hourly rate basis. Although some additional work was required in the calculation of maintenance rates for the various machines the arrangement was more equitable than that of club A, in that it provided for the sharing of maintenance costs on the basis of hours of use.

A somewhat different type of arrangement prevailed in club C. Here all fuel for the tractor was purchased by the club and resold to members at a profit sufficient to cover other operating costs. Each member was charged 35 cents per gallon for fuel consumed in operations on his farm. As this club was operating with newly purchased equipment, operating costs were quite low. The charge of 35 cents per gallon, plus the profit on some custom work, was sufficient to cover fuel and oil as well as other operating expenses. Equipment was operated almost entirely by one of the members. Other members were located on nearby farms and payment for the operator's time was largely in the form of an exchange of labor and equipment.

A slightly modified version of this plan was in effect in club D. In this club equipment was largely operated by the members. The plan was further simplified by having all sales of fuel handled through an oil dealer. Fuel was delivered to each member as required at a charge of 44 cents per gallon. The dealer collected payment from the member, deducted the cost of fuel, and turned the balance over to the secretary. Since fuel consumption reflected equipment use, the contribution of each member to operating costs, other than fuel, was roughly proportional to the use which he made of the machinery. Furthermore, the annual lump sum contribution for maintenance, prevailing in some of the other clubs, was replaced by a series of payments spread over the year.

By restricting service and placing added responsibility on members, procedures such as those outlined above substantially reduced administrative work. In most cases no analysis was made of the cost of operating individual machines and in clubs such as C and D, maintenance of other equipment was closely linked with and necessitated the use of the club tractor. Such arrangements were generally limited to small compact groups of farms where there was little problem in communication. The chief weakness was the large measure of responsibility placed on the members. Where members trusted each other and worked well together such groups often operated very successfully. Where responsibility was abused increasing dissension usually led to club disbandment.

When many items of equipment were required and active membership exceeded five or six farms, the club usually preferred to establish hourly rate charges and to hire an operator. This was especially true when the farms were somewhat scattered or varied in size. Hourly rate charges provided a more equitable allocation of costs and in many cases facilitated the use of equipment by permitting its operation with or without the club tractor. This encouraged the members who purchased their own tractors to retain membership in the club. Hourly rate charges appeared to work equally well in clubs with a large as in those with a small membership. Smaller clubs, however, usually had a plan similar to that adopted in Club B, where the equipment was operated by the members. The chief disadvantage of an hourly rate charge system is the large amount of bookkeeping work which it entails.

Sometimes, when only a few machines are jointly owned, rates are not established for the use of those machines. An operator is not required, each member usually providing the labor when a machine is used on his farm. An allowance is seldom made for depreciation and interest. Members simply share the cost of repairs, each year, on an equal basis, if they all make about the same use of the equipment. This type of arrangement usually proves to be very satisfactory. In other cases an allotment of operating and overhead costs, proportionate to the use made of the equipment by each member, would be an equitable arrangement.

Even if it was desirable to select a procedure which reduced administrative work this was sometimes carried to the point where service and efficiency were impaired. Many clubs were fortunate in having secretaries who were prepared to give a large amount of time to club work. Many others might well have followed the example of one of the clubs in paying at least a small salary to the secretary. The club which operated with hourly rate charges and a hired operator was one of the most successful groups studied. Separate rates were established for the use of each item of equipment with or without the tractor or the operator. The club also arranged to hire equipment for use of members and provided special facilities for financing purchase of equipment. The salary paid the secretary was more than repaid in efficiency and low cost service.

CONSUMPTION OF CHEESE IN CERTAIN RURAL AREAS OF QUEBEC AND ONTARIO, 1954

CHARLOTTE I. JOHNSTON

In Canada cheese does not hold a place in the diet comparable to that in most western European countries. In Switzerland, the Scandinavian countries, France, the Netherlands and Belgium from 10 to 20 pounds per person were eaten annually in the years 1950 to 1953, whereas the Canadian consumption rate averaged less than six pounds per person per year.[1] Even in Argentina and the United States where more meat is eaten per person than in Canada the consumption of cheese is also higher.

Two previous studies of the Economics Division have investigated cheese consumption by various sections of the Canadian population[2]. In the more recent study it was found that cheese consumption per person in five of a group of seven cities, selected to be representative of the various urban centers, exceeded the Canadian average of 5·7 pounds. Consequently, a study was undertaken in Quebec and Ontario to determine whether the level of cheese consumption in smaller centres with populations under 10,000 and their adjoining trading areas was likely to be lower than that in the major cities (in those provinces).

Method.—An audit of retail sales of cheese from all sources was used in order to get figures as exact as possible of disappearance of cheese in the designated areas without having to obtain data of sales from wholesalers whose distribution boundaries would not necessarily coincide with those of the survey areas. The areas suitable for study were thus restricted, as it was necessary for each to be a single, compact, self-contained shopping unit for cheese. In the highly urbanized provinces of Ontario and Quebec it was difficult to find shopping areas centered around small towns or cities in which the residents were unlikely to buy a significant portion of their cheese in neighboring large cities and in which tourist trade was unlikely to have a significant effect on sales of cheese.

Cheese producing areas in Hastings County, Ontario, and Yamaska County, Quebec, and non-cheese producing areas in Bruce and Grey Counties, Ontario, and Kamouraska County, Quebec, were selected as satisfactory for the purposes of the survey. In the course of field work it was discovered that sales of cheese in the portion of the Bruce-Grey area in Bruce County might be affected by cheese factories some distance from its borders. Accordingly, the area was divided near the county boundaries.

Data as to sales of cheese to consumers were obtained from grocers, cheese factory managers and other retail distributors of cheese. In interviews in the summer and early fall of 1954 figures of their sales of cheese for the year up to the month of interview were requested[3]. Some data were supplied from purchase invoices or other records but most were estimates. Almost all the retail distributors of cheese, including cheese factory officials, agreed to supply records of their purchases or sales of cheese during the remaining part of 1954 and their co-operation provided reliable data from which the rates of cheese consumption could be computed.

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[1] Intelligence Branch of the Commonwealth Economic Committee. *Dairy Produce.* Her Majesty's Stationery Office, London, 1954.

[2] Boucher, G. P. and W. C. Hopper. *An Economic Study of Cheese Consumption in Certain Urban and Rural Districts of Canada.* Canada Department of Agriculture, Ottawa, 1939. Drayton, L. E. *Sales of Cheese in Selected Canadian Cities.* Canada Department of Agriculture, Ottawa, 1953.

[3] Kamouraska was the last area visited with the result that for that area interview data were generally relied on for eight months. In other areas five months of actual purchase or sales records were obtained from the great majority of the retail distributors, and sales in July were usually stated to be similar to those of August.

Consumption of Cheese

All Cheese.—Domestic disappearance of cheese in Canada in 1954 was 6·26 pounds per person[1]. In Ontario cheese consumption per person in the non-cheese producing areas equaled that rate and in the cheese producing area exceeded it by almost one-third (Table 1, Chart 1). By contrast, the rate of cheese consumption in both Quebec areas was considerably below the national average.

Table 1.—Consumption of Cheese in Certain Rural Areas of Quebec and Ontario, 1954

Area	Population	Consumption per Person				
		Jan.—June [a]	July—Aug.	Sept.—Dec.	Jan. 1—Dec. 31	Jan. 1—Dec. 31
	number	—pounds per month—				—pounds per year—
Quebec—						
Yamaska [b]	16,073	·37	·57	·50	·45	5·4
Kamouraska [c]	13,356	·34 [d]	....	·35	·34	4·1
Ontario—						
Hastings [b]	15,185	·62	·75	·75	·69	8·2
Bruce [e]	12,075	·52	·51	·50	·51	6·2
Grey [c]	13,190	·53	·54	·55	·54	6·4

[a] Consumption reported for this period is based largely on estimates of sales made to individuals during the first interview; consumption reported for the remainder of the year is based mainly on records kept by the distributors.
[b] Cheese producing area.
[c] Non-cheese producing area.
[d] January—August.
[e] Adjacent to a cheese producing area.

In both Quebec and Ontario those who were able to get cheese from local factories ate considerably more cheese than did those in areas without cheese factories. On the other hand, sales from door to door direct from a factory did not raise consumption in the Bruce area above that in the neighboring area of Grey County.

There was little variation from season to season in computed consumption of cheese in the non-cheese producing areas. In both cheese producing areas, however, consumption was lowest in the winter and early spring when supplies from the factories were cut off and the stores failed to sell more cheese.

In Ontario the rate of cheese consumption in the cheese producing area was similar to that found in Toronto (8·0 pounds) but lower than that found in Sudbury (8·7 pounds) in 1951-52[2]. That in the non-cheese producing area was substantially lower than in those cities. The rate of cheese consumption estimated for the non-cheese producing area of Quebec was almost exactly equal to the 4·2 pounds estimated in 1951-52 for Three Rivers but in the cheese producing area of Yamaska consumption was higher than in that city. Taking into consideration that the national average consumption of cheese increased from 5·7 to 6·3 pounds per person in the interval, these data suggest that people in large urban centres eat somewhat more cheese than do those in small urban centers and rural areas, except in the vicinity of cheese factories.

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[1] Dominion Bureau of Statistics, Agriculture Division. *Dairy Statistics 1954.* Ottawa, 1955.
[2] Drayton, L.E. op. cit, p. 3.

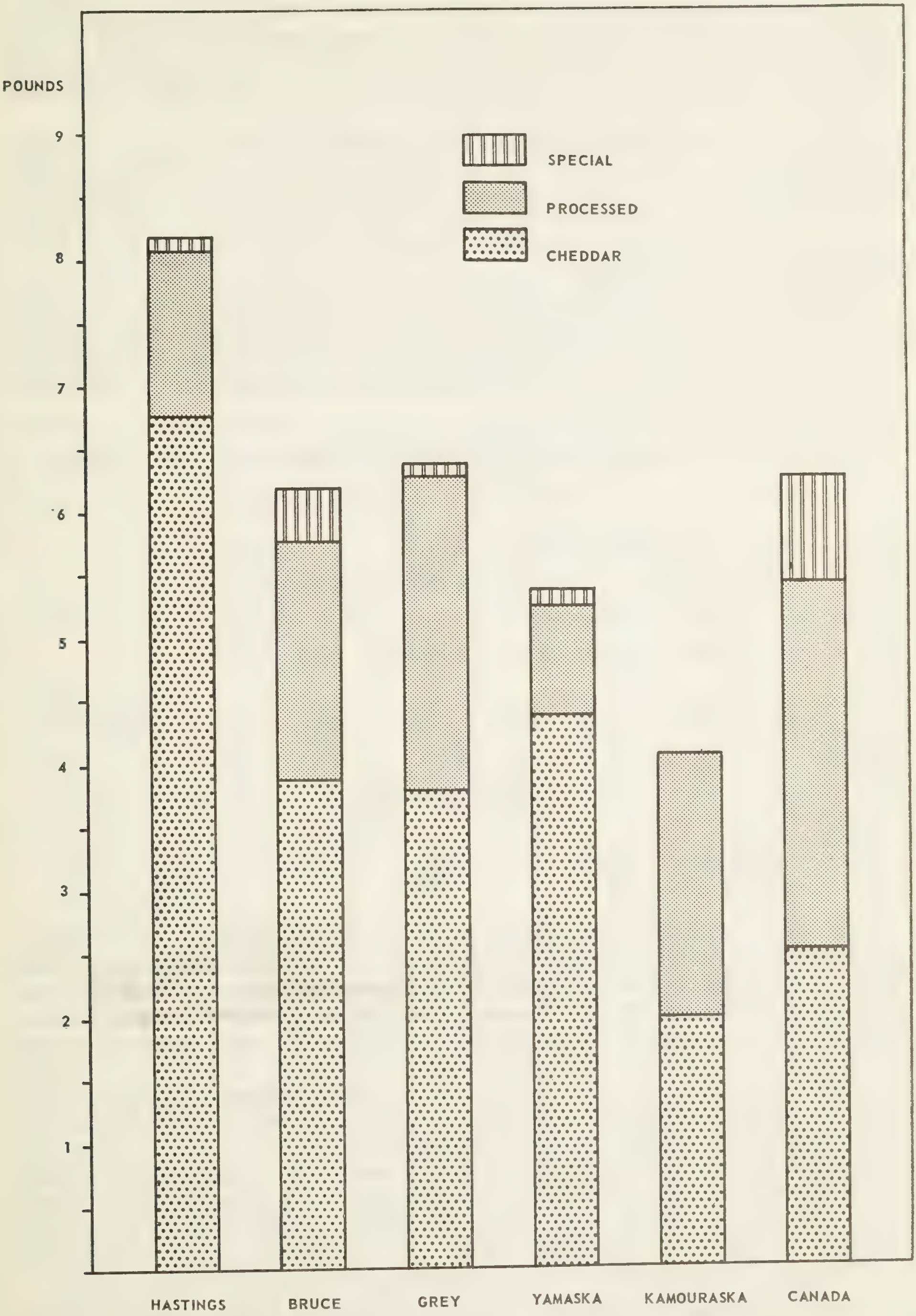

Chart 1.—Consumption of cheese per person in certain rural areas of Ontario and Quebec, and in Canada, 1954.

Cheddar.—A high level of cheddar cheese consumption was associated with its production in Hastings and Yamaska counties. Consumption per person in both counties was higher than in the non-cheese producing areas of Bruce, Grey and Kamouraska Counties (Table 2). Even in the latter the rate of consumption exceeded 2·5 pounds per person, the average for all Canada in 1954.[1]

Cheddar cheese formed a greater part of the cheese consumed in each survey area than in Canada as a whole, where only 40 per cent of the cheese eaten was cheddar. In each of the cities surveyed in Quebec and Ontario in 1951-52, cheddar constituted less than half of the cheese sold. Thus, it appears that a larger proportion of the cheese eaten in small centers and rural areas than in large cities is cheddar.

Cheddar was sold by 87 and 98 per cent of the stores selling cheese in the Grey and Bruce areas respectively. No doubt it was available because of the demand for it, but its availability may also have contributed to the relatively high consumption in those areas. In Kamouraska only 66 per cent of the stores selling cheese offered cheddar.

Table 2.—Sales and Consumption of Cheddar Cheese in Certain Rural Areas of Quebec and Ontario, 1954

Area	Stores selling		Cheddar consumption per person per year	Cheddar as a percentage of all cheese	Percentage of cheddar			
	Cheese	Cheddar			Mild	Medium	Old	Uncolored
	number	per cent	pounds	per cent	—per cent—			
Québec—								
Yamaska [a]	55	80	4·4	81	99	0	1	100
Kamouraska [b]	58	66	2·0	49	98	2	0 [c]	97
Ontario—								
Hastings [a]	70	90	6·8	83	69	25	6	23
Bruce [d]	42	98	3·9	64	27	67	6	1
Grey [b]	63	87	3·8	60	26	54	20	0 [c]

[a] Cheese producing area.
[b] Non-cheese producing area.
[c] Not more than 0·5 per cent.
[d] Adjacent to a cheese producing area.

The survey indicated that Quebec rural people bought only mild cheddar. Even cheddar held only for the 60 days required by health regulations was considered too old by many. Cheddar cheese made from pasteurized milk remains mild; most of the cheddar consumed in the Quebec areas was of that type. In Yamaska County seven per cent of the cheddar sold was in the form of curds.

Mild cheddar was also most popular in the Hastings area. The greater part of the cheddar bought in the other Ontario areas was medium in strength, and in the Grey area one-fifth was old (Chart 2).

Almost all the cheddar sold in the Quebec areas was uncolored; in contrast, in the western survey areas of Ontario, almost all was colored. A strong preference for one or the other kind has doubtless developed in each area, depending on which is customarily sold. In the Hastings area the factories supplied a higher proportion of the uncolored cheddar than did the stores.

Processed Cheese.—In Canada the consumption of cheese processed from cheddar, plus the cream cheese produced which was probably all consumed in

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[1] Dominion Bureau of Statistics, Agriculture Division. *Dairy Statistics 1954.* Ottawa, 1955.

Canada, amounted to about three pounds per person in 1954.[1] In none of the survey areas was the consumption rate of processed[2] cheese found to be that high (Table 3). The greatest quantity per person was consumed in the Grey area, although in Kamouraska processed cheese made up a larger part of all the cheese eaten.

Not less than 95 per cent of the stores selling cheese in each area sold processed cheese. Regular supply, convenient packaging, lack of deterioration and consistent quality of the product, as well as aggressive salesmanship, were no doubt responsible for its sale in many small stores where no cheddar was carried.

Special Cheese.—About 0·7 of a pound of cheese other than cheddar, cheese processed from cheddar, and cream cheese, was eaten per person in Canada in 1954.[3] In the survey areas even less "special"[4] cheese was consumed. The highest rate of consumption was that of the Bruce area. About one-quarter of the rural[5] people of Bruce county are of German descent and a large part of the special cheese eaten there was Limburger.

Table 3.—Sales and Consumption of Processed [a] and Special [b] Cheese in Certain Rural Areas of Quebec and Ontario, 1954

Area	Stores selling		Processed		Special		
	Cheese	Processed	Consumption per person per year	Processed as percentage of total	Stores selling special cheese	Consumption per person per year	Special as percentage of total
	number	per cent	pounds	per cent	per cent	pounds	per cent
Québec—							
Yamaska [c]	55	96	1·01	19	22	·04	0·7
Kamouraska [d]	58	97	2·06	50	19	·04	1·0
Ontario—							
Hastings [c]	70	99	1·38	17	6	·03	0·3
Bruce [e]	42	100	1·89	31	64	·34	5·6
Grey [d]	63	97	2·52	39	21	·07	1·2

[a] Processed from cheddar, plus small quantities of cream and skim milk cheese.
[b] Other than cheddar and processed as defined above.
[c] Cheese producing area.
[d] Non-cheese producing area.
[e] Adjacent to a cheese producing area.

Suppliers of Cheese.—The restaurant proprietors were interviewed during the second visit to the Ontario areas, but no information was obtained about cheese eaten in the restaurants of the Quebec areas. Only about 0·05 of a pound per person per year was supplied to residents of each of the three Ontario areas by restaurants, and the few restaurants of the Quebec areas are unlikely to have provided more.

Excepting restaurants, retail stores were the sole suppliers of cheese in the Kamouraska and Grey areas (Table 4). In the Bruce area[6] four-fifths, and in each of the two cheese producing areas about two-thirds of the cheese reported was handled by retail stores. In the latter areas, especially in Yamaska, their proportion of the trade was greater in the first half of the year.

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[1] Dominion Bureau of Statistics. Agriculture Division.

[2] Processed from cheddar, plus small quantities of cream and skim milk cheese.

[3] Based on figures from the Agriculture Division, Dominion Bureau of Statistics.

[4] Cheese other than cheddar or processed cheese as defined for the survey.

[5] Outside places of 1,000 or more in population.

[6] Some cheese may have been bought direct from cheese factories in adjacent areas. As the nearest factory was 10 miles from the boundary of the area such purchases, if any, were probably limited to a few families.

Factories supplied a larger proportion of the cheese consumed in the Ontario than in the Quebec area; in Hastings County almost all the cheese not sold by retail stores was sold from factories. In Yamaska door-to-door salesmen provided about eight per cent of the cheese sold to consumers and salesmen had an even larger share of the business in Bruce County.

Retailing.—On the whole, displays of cheese were larger in the non-cheese than in the cheese producing areas (Table 5). From 45 to 60 per cent of the displays in the former areas were rated by the interviewers as medium, or in a few cases large, but the corresponding proportions were only 20 and 26 per cent in the cheese producing areas. Neglect of cheese displays may have resulted from the purchase of cheese from factories by many customers. However, cheese displays were probably related to the size of business and affluence of the community, at least in Ontario. The many varieties of processed cheese lend themselves to large displays, and in Quebec the area with the higher consumption of processed cheese had the higher percentage of medium, rather than small, displays.

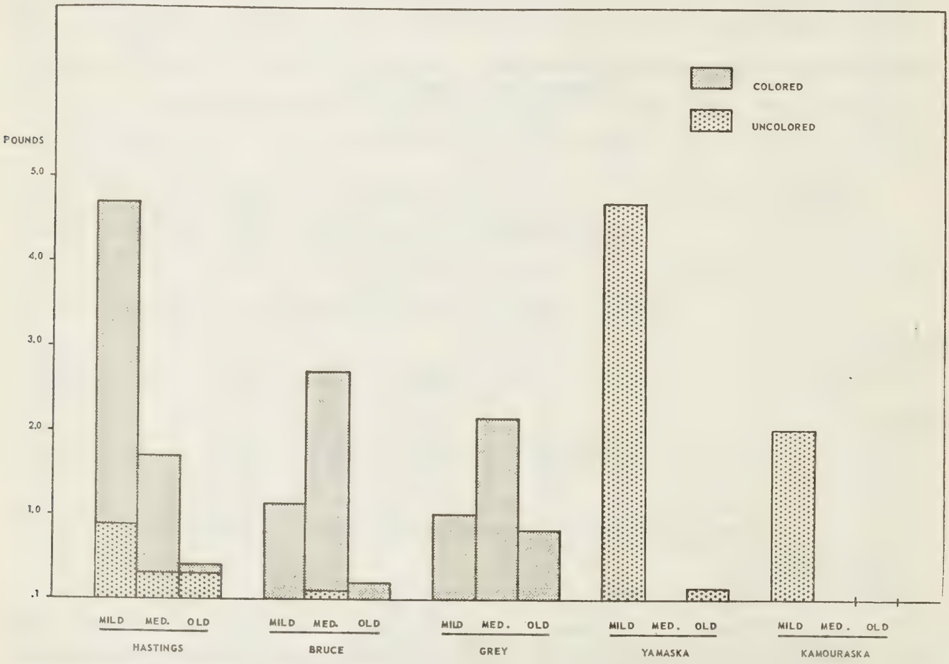

Chart 2.—Consumption of Cheddar cheese per person in certain areas, Ontario and Quebec, 1954.

Refrigeration of both cheddar and processed cheese in displays was more common in the Ontario than in the Quebec areas. Although the proportion of the stores keeping any cheddar in storage was smaller in the Quebec than in the Ontario areas, the proportions keeping the cheddar in refrigerated storage were not widely different. Very few stores in the Quebec areas kept processed cheese in storage. In the Hastings and Grey areas processed cheese was less frequently kept under refrigeration in storage than was cheddar.

In the Hastings area only 50 per cent of the stores selling cheddar sold any under a brand name, but between 75 and 95 per cent of the stores in each of the other areas sold branded cheddar.

Very few of the retailers, from 5 to 13 per cent in any area, and only those in Ontario, prepackaged the cheddar cheese they sold.

Almost all the cheddar seen on display appeared to be fresh. The lowest proportion, 90 per cent, of the stores selling cheddar rated as fresh was that of the Hastings area.

Conclusion.—Consumption of the cheese was higher in Ontario than in Quebec rural areas, and higher in cheese producing than in non-cheese producing areas. Comparison of the data of the 1954 study with those of the 1951-52 study indicates that the rate of consumption of cheese in small centers and rural areas is lower than that in large cities, in Ontario but not in Quebec. In the latter province cheese consumption is below the national average, even in the cheese producing area studied.

Table 4.—Numbers of Retail Distributors of Cheese by Class, and Percentages of Cheese Supplied, in Certain Rural areas of Quebec and Ontario, 1954

Class of retail distributor	Quebec				Ontario					
	Yamaska [a]		Kamouraska [b]		Hastings [a]		Bruce [c]		Grey [b]	
	no.	per cent of cheese supplied	no.	per cent of cheese supplied	no.	per cent of cheese supplied	no.	per cent of cheese supplied	no.	per cent of cheese supplied
Factories	9[d]	25	0	0	17	33	—	—	0	0
Restaurants	—	—	—	—	9	1	9	1	7	0[e]
Retail stores	55	67	58	100	70	66	42	82	63	100
Salesmen	2	8	0	0	0	0	3	17	0	0
Total		**100**		**100**		**100**		**100**		**100**

[a] Cheese producing area.
[b] Non-cheese producing area.
[c] Adjacent to a cheese producing area.
[d] Including two factories which bought their cheese from another factory outside the survey area.
[e] Less than 0·5 per cent.

In the consumption of cheddar cheese, the Quebec cheese producing area exceeded the Ontario non-cheese producing areas, and in consumption of processed cheese the Quebec non-cheese producing area ranked second.

The presence of cheese factories adjacent to the Bruce area, from which cheese was brought by door-to-door salesmen, resulted in little difference in the consumption of total cheese or of cheddar between the two neighboring areas in Bruce and Grey Counties. Those areas did differ, however, in their consumption rates of types of cheddar, of processed, and of special cheese.

In both the cheese producing areas consumption rates of total cheese, and of cheddar, were lowest in the first half of the year when less was available from factories. Retailers in those areas did not increase their sales at that time.

In the non-cheese producing area of Quebec consumption of cheddar was particularly low. As cheddar cheese is an economical food its cost is not a deterrent to its use; in fact, the higher priced processed cheese was consumed in equal quantities in the area. As mild cheddar is the type apparently preferred there, the possibility of an expansion of the sale of cheese made from pasteurized milk is indicated.

Table 5.—Retailing and Storage of Cheese by Retailers in Certain Rural Areas of Quebec and Ontario, 1954

——	[a]	Quebec		Ontario		
		Yamaska[b]	Kamouraska[c]	Hastings[b]	Bruce[d]	Grey[c]
Displays of cheese rated [e]..	number	54	58	66	41	62
Large....................	per cent	2	3	5	2	10
Medium.................	per cent	24	42	15	59	40
Small....................	per cent	74	55	74	39	50
None....................	per cent	0	0	6	0	0
Stores having cheddar on display..................	number	43	38	52	39	54
Refrigerated, wholly or in part..............	per cent	9	13	31	51	41
Stores having processed [f] on display..................	number	52	56	61	41	61
Refrigerated, wholly or in part..............	per cent	8	11	33	54	34
Stores having cheddar in storage..................	number	28	22	49	36	51
Refrigerated, wholly or in part..............	..per cent	64	77	82	58	59
Stores having processed [f] in storage..................	number	13	18	45	33	52
Refrigerated, wholly or in part..............	per cent	38	61	53	54	35
Stores selling cheddar......	number	44	38	63	41	55
Branded cheddar sold....	per cent	79	92	50	87	78
Cheddar prepackaged by retailer................	per cent	0	0	7	5	13
Cheddar appeared fresh..	per cent	98	100	90	100	95

[a] Numbers and percentages refer to stores for which information was obtained.
[b] Cheese producing area.
[c] Non-cheese producing area.
[d] Adjacent to a cheese producing area.
[e] Including no displays.
[f] Processed from cheddar, plus small quantities of cream and skim milk cheese.

Even in the cheese producing areas well over half of all the cheese consumed was sold by retail stores. The displays of cheese in most of the stores were small, and many stores did not have cheese under refrigeration. Variety of types offered was often limited. Improvements in such conditions might stimulate the demand for cheese.

A REPORT ON THE EIGHTH SESSION OF THE FAO CONFERENCE—NOVEMBER 1955[1]

The Eighth Session of the Food and Agriculture Organization opened on November 4, 1955. Delegates from 71 member nations joined with officials of the Italian Government and the Rome diplomatic corps in celebrating the Organization's Tenth Birthday. The Session ended on November 25, 1955 after reviewing past work, determining the program and budget for 1956 and 1957 and voting in its 72nd member, Tunisia.

The Tenth Anniversary was the occasion for both a backward and forward look. Thus on the first day of the Conference, the Organization had three guest speakers representative of the different regions of the world. The first guest speaker was Senor Joaquin Elizalde of the Philippines. He stressed the value of the Organization's work under its Expanded Technical Assistance Program, but warned that such aid, as presently carried out, is intrinsically limited and must be considered as an auxiliary factor in the economic progress of under-developed countries. Mr. Clifford R. Hope of the United States, the second speaker, a member of Congress, said that FAO's first decade had witnessed a "dramatic transformation" from the famine and threats of famine in the immediate postwar years to the current situation, where agricultural surpluses are causing concern. The challenge facing FAO, he said, is "the paradox of surpluses and shortages" existing side by side; despite surpluses in some countries, "countless millions" of people are still inadequately fed, poorly clothed and ill-housed. In the face of the growing problem of maldistribution and underconsumption he added that the emphasis must now be on programs to improve and protect the income of farmers who produce more than they can economically sell, to reduce production and distribution costs so that food prices may be lower, to co-operate with other agencies in general economic development, and to improve economic opportunities for farm labor displaced by mechanization.

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[1] Prepared by Frank Shefrin, a member of the Canadian delegation attending the FAO Conference. Although the term agriculture refers to farming, fishing and forestry, this report will deal mainly with the activities as related to farming and its products.

Professor Andre Mayer of France pointed out that "FAO certainly has improved the state of food and agriculture all over the world, although the final aims of the Organization are still far from realization". But he said that we have reached the point where we are thinking and working intensely in a community—a community of intentions, firm will and action, and therefore a community of hope.

The Director-General of the FAO, Dr. Cardon also assessed FAO's first decade. He indicated that progress has been made. Tangible benefits such as improved production and human well-being through technical advice were there—as were the no less vital intangible gains, the growing confidence and experience which have resulted in a surer attack on fundamental human problems. The early period of preoccupation with explorations, organization and getting under way, the Director-General indicated, is in a large part over.

With the above broad principles or terms of reference reiterated, the Conference proceeded to review the current world agricultural situation, the problems to be met, and the program of work for the years 1956 and 1957.

Conference Procedure

The Conference established several Commissions and Committees to:

(*a*) consider the world food and agricultural situation and the policy problems which are susceptible of being solved through concerted international action;
(*b*) review activities of the Organization in the technical (including economic) fields and formulate guiding lines of its future program;
(*c*) settle all matters of a constitutional, legal and administrative character affecting the operations of the Organization.

The delegates had before them for review and discussion 52 documents, besides some 80 documents that were distributed at the Plenary Commission and Committee meetings. All conference papers were produced in three languages, English, French and Spanish. The meetings were conducted in the three languages by means of simultaneous translation.

The Canadian delegation, headed by Dr. J. G. Taggart, Deputy Minister of the Department of Agriculture, participated in all the Commissions and Committees. Dr. L. B. Pett of the Department of Health and Welfare was Chairman of the Nutrition Committee and Col. J. Jenkins was vice-chairman and rapporteur for the Forestry Committee.[1] Canada was re-elected to the Council and the Committee on Commodity Problems. The Council which met after the Conference ended, appointed Dr. J. F. Booth of the Department of Agriculture to the seven-member Co-ordinating Committee. Members of this body are not representative of Governments but act as individuals. Its function is to advise the Director-General on the program of work of the FAO.

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[1] The other technical committees were Agriculture, Economics, Fisheries and Information There was also a Committee on Constitutional and Administrative Matters.

Canada's contribution for each of the years 1956 and 1957 is 4·61 per cent of the regular FAO budget. This makes Canada the fifth largest contributor. The scale of contributions by member countries is related to the level of national income. In addition Canada bears part of the cost of the technical assistance program, which is operated by the United Nations Organization in co-operation with the specialized agencies.

Current World Food and Agricultural Situation

The Conference, after reviewing the current agricultural situation, noted the remarkable developments in member countries during the past decade both in the technical, and in the social and economic fields, and the accelerated progress made in the technical methods of agriculture and in their utilization. Important steps had been taken in many countries towards the co-ordinated programming and development of agricultural, fisheries and forestry resources. As a result of these developments world per caput agricultural production, which had fallen by 10-15 per cent at the end of the war, had by 1952-53 regained its prewar level in spite of an increase of nearly 25 per cent in population. However, since regaining the prewar level in 1952-53 neither per caput world production nor the level of world trade in agricultural products has shown any appreciable gain. In general, there has been no fundamental change in the situation since the 1953 session of the Conference.

There are still problems. The rate of development was higher in the more-advanced than in the less-developed parts of the world, and, as a result, the disparities of production and consumption between these areas, had tended to increase. Asia, for example, with half of the world's population accounted for only one quarter of the world's agricultural production, and *per caput* production in this continent was still below its unsatisfactory prewar level.

Then again, with the recovery of agricultural production, problems of distribution had again become urgent. Although commendable restraint had been exercised by the countries concerned in the disposal of surpluses, these stocks inevitably gave rise to a feeling of uncertainty in world markets and tended to deter further efforts to expand production.

The Conference accordingly re-emphasized the Selective Expansion of Production and Consumption approach as outlined at the 1953 Session. It advocated a greater emphasis on regional consultation as a means of setting up and implementing beneficial food and agricultural policies. It stressed the importance of measures to increase the efficiency of distribution and marketing to reduce consumer prices, and of ways to achieve greater flexibility of production, so that crops produced would more nearly correspond to changes in demand. The Conference passed a resolution recommending that the Director-General establish a working party of experts "to be nominated by their governments, to analyze the various systems of price support and other methods of maintaining farm income, including measures to reduce cost and raise productivity . . . with particular reference to their effects on the flexibility of production, on domestic consumption levels, on the levels of international trade and on the maintenance of a level of farm incomes in reasonable relation to incomes in other occupations, and to submit their findings to the Committee on Commodity Problems".

In the course of the review of agricultural commodity problems, special attention was given to matters which had been referred for the consideration of the Conference in the reports of the Twenty-fifth and Twenty-sixth Sessions of the CCP. The Conference expressed its satisfaction at the progress made in the formulation and acceptance of principles of international behavior in matters of surplus disposal. It noted that the Principles and Guiding Lines of Surplus Disposal drawn up by the CCP and endorsed by the Council had been formally accepted by 37 FAO Member Nations and that no FAO member had notified the Director-General of its dissent or of any reservations. At the same time the Conference passed a resolution requesting "the CCP to instruct the Consultative Sub-Committee on Surplus Disposal to consider ways and means in which a report could be prepared, in co-operation with the Director-General, on (*a*) the extent to which the approved principles have been observed and (*b*) the effects, if any, on the markets of other member countries of disposals of surplus products on special terms either by price arrangements or other means; and to report its findings and conclusions to the CCP".

The Conference also enlarged the membership of the Committee on Commodity Problems from 20 to 24. It was agreed to re-open membership in the Consultative Sub-Committee on Surplus Disposal that meets in Washington. In both cases it was indicated that more Member Nations wished to participate in the work of these Committees. A CCP Consultative Sub-Committee on the Economic Aspects of Rice was established. The terms of reference of the new sub-committee are as follows:

> To provide a forum for consultation on the economic aspects of rice, paying particular attention to trade matters and to any special difficulties which exist or are likely to arise in the international trade in rice; and to report periodically to the CCP, it being understood that copies of its reports and summary records of its proceedings, including any conclusions, should be circulated to interested governments as soon as possible.

Membership is open to all interested governments.

Budget and Program of Work

The session adopted a budgetary level of $6,600,000 for 1956 and $6,800,000 for 1957, an increase over the previous two-year budget but less than that proposed by the Director-General. Agreement on the expanded budget was reached after detailed reviews of proposed plans for the next two years by several committees and after the Director-General, Dr. P. V. Cardon, had submitted estimates calling for substantial administrative and travel reductions during that period. His original program of work for 1956-57 was scaled down to eliminate one new project and to delay work on the implementation of several others.

The program authorized for the next two years placed a great emphasis on the need for increasing consumption and improving nutrition as a means of solving the world problem of agricultural shortages in some areas and surpluses in others.

Besides approving the continuation and expansion of programs already undertaken by the Organization, the Conference authorized it to expand into new fields. New activities will include a global survey of renewable agricultural resources in relation to both potential production and the needs of member countries; the compilation and distribution of information in the field of the peaceful uses of atomic energy especially related to agriculture; increased participation:

(1) in fundamental education programs with UNESCO;

(2) in consultations on land reform with the United Nations and other international bodies;

(3) on survey missions, with the International Bank for Reconstruction and Development;

an extension of its program of research fellowships for technical personnel from countries which feel the need of this assistance; increased activity in conjunction with UNICEF in providing milk and improving child nutrition; and the enlargement of its work in pursuing, through regional conferences, the broad development of national economies.

The Conference also approved the general lines of development of the Expanded Technical Assistance Program, under which FAO for five years has taken part in the United Nation's program of technical advisory aid. The assistance of experts in specific fields is provided at the request of members governments. During 1955, nearly 500 experts were sent out and about 300 Fellowships were awarded. These men and women were experts in agriculture, fisheries, forestry, nutrition and economics. Expenditures in 1956 will total about $8,000,000, an increase over 1955.

In his review of the Technical Assistance program the Deputy Director-General of the FAO said increased emphasis should be placed on the regional approach to technical programs, under which regional training centers and projects in some cases ensure a greater benefit to under-developed areas than strictly country activities.

The Deputy Director-General also set the keynote for the discussions by restating the objectives of the ETAP program. "Our aim is not to impose upon the so-called under-developed countries of the world the methods and discoveries of the so-called developed countries," he said, "but to make those methods and discoveries available as means of enabling countries everywhere to bring to full fruition material and human resources at their disposal, and thereby fulfil the realization of their own cultures and environments".

Constitutional and Administrative Matters

Among the many matters discussed under this heading two should be mentioned as new developments.

Structure, Functions and Procedures of the Council and of Certain Committees—The Conference is aware of the danger of a proliferation of committees, sub-committees, and of documentation. As a result an ad hoc Committee of government representatives was set up to carry out a study of the functions, inter-relationships, meetings and other arrangements of the Council, Co-ordinating Committee, the Committee on Financial Controls and the Committee on Commodity Problems with a view to:

(*a*) reducing the number and duration of meetings;
(*b*) eliminating unnecessary documentation;
(*c*) avoiding successive reviews of the same subject matter.

The aim of this Committee is to attain such simplifications as would lead to economy of time, and money, bearing in mind the need to ensure adequate supervision of the activities of the organization, and the fullest participation of Member Governments therein. This ad hoc Committee is to report to the Ninth Session of the Conference in 1957.

Admission of Associate Members—The Members of the FAO have never considered it as an exclusive club. It was the intention of the founders to bring into the Organization as many countries as possible. The Conference accordingly amended the Constitution making it possible for non-self governing territories to be admitted as Associate Members. This group is empowered to send delegates to participate with Member Nations in the activities of the Organization but does not have the right to vote or hold office. The Conference also recommended that these delegates to the Conference be chosen from among the peoples of the Associate Members.

PUBLICATIONS OF THE ECONOMICS DIVISION

Federal Agricultural Legislation in Canada, 1954.—April 1955. pp. vi+76.

A reference paper which replaces the original publication and the supplement on federal agricultural legislation.

It provides up-to-date outlines of agricultural legislation and of sections pertaining to agriculture in Acts administered by departments other than the Department of Agriculture. The subject matter is classified into the following eight broad categories: *Administration; Agricultural Production; Land Policies; Farm Credit Facilities and Government Relief; Income Tax; Marketing of Farm Products; Processing, Packaging and Storing; Transportation; Trade; Food and Agriculture Organization of the United Nations; and International Conventions.*

Condition of Maritime Potatoes in Railway Transportation Survey.—Miller, G. B. E. H. Young and W. C. Way. Ottawa. September 1955. pp. 9.

A report on the findings of a "transportation survey on the condition of Prince Edward Island and New Brunswick potatoes moved by rail in refrigerator cars from November 1, 1954 to April 1, 1955". The main factors studied were type of package, type of refrigerator car, pre-heating and heating in transit, temperature of product and of air in and outside car, and method of loading and stowage.

Farm Account Book.—Available at the Queen's Printer, Ottawa. Twenty-five cents a copy. pp. 48.

A revision of the Farm Account Book first published in 1949 and slightly revised in 1951. The new book provides for the inclusion of capital expenses in the Farm Expenses section and of capital sales in the Farm Receipts section. The Farm Inventory section is modified and lengthened in such a manner as to provide a better record of the changes in the value of land, buildings, livestock, machinery, and feed and supplies during the year. The Record of Credit Transactions during the year is replaced by a Record of All Amounts Owed by the Farm (Liabilities) and a Record of All Amounts Owed to the Farm (Assets). Guides for calculating feed requirements are supplied in a new section called Feed Requirements of Various Kinds of Livestock.

Farm Rental, Operating and Transfer Arrangements.—Burton, G. L. November 1955. pp. 31.

Part I of this report discusses farm rental arrangements and shows how to work out a fair lease and appraise rental arrangements. Part II reviews the essential conditions for workable farm operating arrangements and presents alternative types of arrangements for different situations. The last Part of the report considers the problems relating to the tranfer of farm ownership within the family.

UNITED NATIONS PUBLICATIONS

Available from: Sales and Circulation Section, Dept. of Public Information, United Nations, New York, U.S.A.

In Canada: The Ryerson Press, 299 Queen St. West, Toronto; and Periodica Inc., 5112 Ave. Papineau, Montreal, 34.

Economic Bulletin for Europe. Prepared by the Research and Planning Division, Economic Commission for Europe. Vol. 7, No. 2. Geneva, August 1955. pp. 111.

This issue of the *Bulletin* is divided into three sections dealing with *Current Economic Developments in Europe; Recent Developments in Trade Between Eastern and Western Europe;* and *The Economy of Hungary, 1950 to 1954.*

A Note on Developments during the Period of the First Five-year Plan.

The first section describes the *Present Trends in Western Europe; The High Level of Activity in the Building and Investment Goods Industries; The Effects of Liberalization of Dollar Imports;* and *Developments in the Soviet*

Union and Eastern Europe. The second section reviews developments relating to the *Further Rise in East-West Trade; Eastern European Exports; Western European Exports;* and *Current Problems and Prospects.* The section on the economy of Hungary describes developments during the period of the first five-year plan under the following headings: *The Three Versions of the First Five-year Plan; The Global Results of the Plan; The Rhythm of Progress; Industrial Development; Agriculture;* and *Foreign Trade.*

Economic Bulletin for Europe.—Prepared by the Research and Planning Division, Economic Commission for Europe, Vol. 7, No. 3. Geneva, November 1955, pp. 79.

This issue of the Economic Bulletin includes two main sections: *Current Economic Developments in Europe* and *Short-Term Business Indicators in Western Europe.* The section on *Current Economic Developments* is concerned with: The *Effects of the Industrial Upswing on Foreign Trade and Payments in Western Europe; The Problem of Maintaining Price Stability; Current Developments in Agriculture;* and *Current Developments in the Soviet Union and Eastern Europe.*

1955 Survey of Primary Commodity Markets.—Prepared by the Secretariat for the Commission on International Commodity Trade. New York. August 1955. pp. X + 122.

A review of the "movement of world primary commodity markets" concerned especially with *Individual Commodity Markets, Selected Commodity Groups, Fluctuations in Commodity Prices,* and *World Commodity Markets in the First Quarter of 1955.* Wheat, sugar, tin and coffee are not considered; they were studied in the *Review of International Commodity Problems 1954* prepared by the Interim Coordinating Committee for International Commodity Arrangements.

OTHER PUBLICATIONS

Economics of Grain Drying and Storage.—Theophilus, T. W. D. Sutton Bonington, Loughborough, Department of Agricultural Economics, University of Nottingham School of Agriculture. Sept. 1955 pp.31.

The "greatly increased importance of grain drying and storage equipment on farms during recent years" suggested the need for "an enquiry into the economics" of this type of equipment.

In his report the author discusses the following topics; *Problems Associated with the Marketing of Grain; Ventilated Bins and Silos; Platforms or In-Sack Driers; Continuous Driers; Effect of Throughput on Fixed Cost per Ton; Does it Pay to Install Grain Drying and Storing Equipment;* and *Costing Methods.*

Agricultural Credit.—Royal Commission on Agriculture and Rural Life. Report No. 3, submitted to the Government of Saskatchewan. 1955, pp. xiii +131.

This is the third in a series of reports prepared by the Royal Commission on agriculture and rural life in Saskatchewan. Agricultural credit is discussed under the following chapter headings: *Introduction; Public Opinion on Agricultural Credit; Use of Credit in Saskatchewan Agriculture; Working Capital Credit; Fixed Capital Credit; Public Proposals on Agricultural Credit;* and *Adapting Farm Credit Sources to the Needs of Modern Farming; Conclusions and Recommendations.*

The Quest for Freer Trade.—Department of Economic and Social Affairs. New York. 1955. pp. v + 59.

A supplement to the *World Economic Report, 1953-54.* Its four chapters deal with *The Import Tariff and Related Issues, Some Aspects of Export Control, The Comprehensive State Monopoly,* and *Quantitative Restrictions, Exchange Restrictions and Related Instruments of Policy.*

THE ECONOMIC ANNALIST

A BIMONTHLY REVIEW OF AGRICULTURAL BUSINESS

MARKETING SERVICE, ECONOMICS DIVISION
J. F. BOOTH, Chief

APRIL 1956 Vol. XXVI, No. 2

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Minister of Agriculture

ANNUAL AND MONTHLY INDEX NUMBERS

Wholesale Prices, Farm Prices and Living Cost Indexes

Year	Wholesale Prices 1935–1939=100				Farm Prices of Agricultural Products 1935–39 =100 (e)	Commodities and Services used by Farmers 1935–39=100		Consumer Price Index (1949 =100) (h)	Food Index (1949= 100) (i)	Index of industrial production (1935–39 =100) (j)
	General Wholesale Index (a)	Farm Products (b)	Field Products (c)	Animal Products (d)		Equipment and Materials (f)	Composite Index (g)			
1913	83·4	....	....	....	....	85·4	....	49·2	44·4	....
1914	85·4	....	....	....	....	90·2	85·3	49·6	46·0	....
1915	91·8	....	....	....	....	96·9	91·6	50·3	46·8	....
1916	109·8	....	....	....	....	101·7	100·5	54·2	51·8	....
1917	148·9	....	....	....	....	140·7	140·5	63·7	66·9	....
1918	166·0	....	....	....	....	164·1	160·2	72·0	76·9	....
1919	174·7	....	....	....	....	169·1	167·9	78·8	82·2	....
1920	203·2	....	....	....	....	190·1	186·5	90·5	94·4	....
1921	143·4	....	....	....	....	147·4	152·5	80·9	72·5	....
1922	126·8	....	....	....	....	124·6	134·1	74·9	61·5	....
1923	127·7	....	....	....	....	118·3	130·6	75·2	61·9	....
1924	129·5	....	....	....	....	122·3	131·9	74·0	60·7	....
1925	133·8	....	....	....	....	123·2	131·8	74·6	63·4	....
1926	130·3	144·4	158·5	130·2	....	119·9	130·6	75·9	66·6	....
1927	127·3	138·6	149·4	127·8	....	119·9	131·2	74·6	65·3	....
1928	125·6	136·3	134·3	138·2	....	118·3	129·3	75·0	65·6	....
1929	124·6	140·8	137·2	144·4	....	117·6	127·9	75·8	67·1	....
1930	112·9	119·5	105·8	133·3	....	105·6	117·0	75·3	65·6	....
1931	94·0	78·9	65·0	92·7	....	92·2	100·9	67·9	51·4	....
1932	86·9	65·5	60·4	70·5	....	89·3	93·3	61·7	42·8	....
1933	87·4	69·3	69·3	69·2	....	88·8	89·8	58·8	42·3	....
1934	93·4	83·5	80·5	86·5	....	96·8	95·5	59·6	46·2	....
1935	94·4	89·2	84·4	94·1	88·0	95·6	95·4	59·9	47·2	85·6
1936	96·8	97·9	102·2	93·7	96·9	98·7	98·1	61·1	48·8	94·6
1937	107·7	117·4	128·9	106·0	119·7	108·4	105·3	63·0	51·4	108·0
1938	102·0	102·9	100·9	104·8	105·0	101·2	101·7	63·7	51·7	102·0
1939	99·2	92·6	83·7	101·5	91·8	95·7	99·3	63·2	50·2	109·7
1940	108·0	96·1	85·4	106·7	96·8	101·8	106·8	65·7	52·6	131·4
1941	116·4	106·6	88·9	124·4	110·2	107·8	116·1	69·6	57·9	164·8
1942	123·0	127·1	109·7	144·6	133·1	119·2	131·6	72·9	63·4	195·7
1943	127·9	145·4	129·0	161·8	157·8	122·4	143·4	74·2	65·2	208·5
1944	130·6	155·3	144·5	166·1	172·4	126·0	148·0	74·6	65·5	212·4
1945	132·1	166·4	162·5	170·2	185·7	125·9	152·1	75·0	66·3	187·2
1946	138·9	179·5	177·9	181·2	204·1	128·0	157·0	77·5	70·0	171·9
1947	163·3	192·2	184·1	200·2	215·8	139·5	170·4	84·8	79·5	187·8
1948	193·4	232·1	200·6	263·7	255·8	173·1	197·6	97·0	97·5	196·3
1949	198·3	228·7	191·9	265·4	255·4	180·3	204·1	100·0	100·0	199·6
1950	211·2	236·7	191·9	281·4	260·8	189·9	210·4	102·9	102·6	211·5
1951	240·2	268·6	200·4	336·9	296·8	206·0	230·0	113·7	117·0	226·5
1952	226·0	247·2	216·9	277·5	274·4	215·8	243·1	116·5	116·8	233·0
1953	220·7	221·6	179·4	263·8	250·4	207·4	239·8	115·5	112·6	248·4
1954	217·0	211·8k	167·4k	256·2	234·8k	203·3	237·2	116·2	112·2	244·6
1955	....	....	....	....	226·2	....	....	116·4	112·1	....
1955										
Jan.	215·7	210·3	172·2	248·4	224·2	205·8	231·8	116·4	112·1	254·4
Feb.	217·4	210·0	174·2	245·8	225·4	....	....	116·3	111·5	254·7
Mar.	217·4	207·0	172·7	241·3	224·1	....	....	116·0	110·7	254·5
April	218·5	216·1	193·4	238·7	231·0	204·7	240·3	116·1	111·0	257·2
May	217·8	216·7	189·9	243·4	232·0	....	....	116·4	112·3	262·7
June	218·7	215·5	180·9	250·0	232·4	....	....	115·9	111·0	267·6
July	218·4	213·1	176·7	249·5	232·4	....	....	116·0	111·5	268·8
August	219·6	204·8	159·0	250·6	226·0	203·3	241·3	116·4	112·4	270·3
Sept.	220·9	202·7	153·9	251·6	226·3	....	....	116·8	113·7	271·5
Oct.	220·0	196·8	151·7	241·9	220·7	....	....	116·9	113·5	273·5
Nov.	220·7	196·9	153·2	240·5	220·2	....	....	116·9	113·0	277·7
Dec.	221·4	197·1	155·2	239·0	219·5	....	....	116·9	112·4	276·2
1956										
Jan.	222·0	196·7	158·4	235·0	218·3	206·3	235·0	116·8	111·5	....
Feb.	222·2	195·9	159·5	232·3	218·3	....	....	116·4	109·9	....
Mar.	....	....	....	....	....	....	....	116·4	109·1	....

(a) Canada. Dominion Bureau of Statistics, Labour and Prices Division. *Prices and Price Indexes.* Ottawa, Monthly.
(b) Ibid. (a). Wholesale prices of products of Canadian farms.
(c) Ibid. (a). Wholesale prices of grains, hay, tobacco and potatoes.
(d) Ibid. (a). Wholesale prices of animals and animal products.
(e) Canada. D.B.S., Agriculture Division. *Index Numbers of Farm Prices of Agricultural Products.* Ottawa, Monthly.
(f) Canada. Dominion Bureau of Statistics, Labour and Prices Division. *Price Index Numbers of Commodities and Services Used by Farmers.* Ottawa, Jan., Apr. and Aug. Includes prices of commodities in 8 groups including farm implements, building materials, gasoline, oil and greases, feed, fertilizer, binder twine, seed and hardware.
(g) Ibid. (f). Includes the 8 commodities indicated above plus tax rates, interest rates and farm wage rates.
(h) & (i) Canada. Dominion Bureau of Statistics, Labour and Prices Division. *Prices and Price Indexes.* Ottawa.
(j) Canada. Dominion Bureau of Statistics. *Canadian Statistical Review.* Ottawa. Monthly.
(k) Subject to revision for Wheat Board Participation payments, August, 1954 to date.

THE ECONOMIC SITUATION

Gross National Product. — Canada's gross national product reached $26·6 billion in 1955, a ten per cent increase over the 1954 figure of $24·1 billion. Most of the increase was the result of an expansion in the volume of production, final product prices remaining fairly stable. The increase over the year 1953, which was the previous peak year in terms of volume of production, is estimated to be about six per cent.

Several important expansionary factors contributed to the $2·5 billion growth in output during 1955. Personal expenditure on consumer goods and services increased $1·0 billion; a major advance was recorded in the durable goods group. Residential construction outlays rose $0·3 billion, a 25 per cent increase from 1954. Exports of goods and services, which declined in 1954, recovered strongly in 1955, rising by $0·6 billion—an 11 per cent increase. The strength in foreign demand was associated with a marked recovery of business activity in the United States and a rising level of activity in overseas countries.

Turning to the investment sector, business outlays for plant, machinery and equipment absorbed $0·3 billion of the $2·5 billion increase in total output in 1955. The increases was in response to a sharp rise in profits and the growing pressure of demand on existing capital facilities. Government expenditures for goods and services rose by $0·3 billion in 1955; gains occurred at all three levels, federal, provincial and municipal. The larger grain crop contributed a like amount to the gain in total gross national product, and the swing in business inventories from liquidation in 1954 to net accumulation in 1955, amounted to $0·4 billion.

Private and Public Investment.—Canadian business, institutions, governments and house-builders plan capital expenditures of $7·5 billion for new construction, machinery and equipment in 1956, an increase of 21 per cent from 1955. The announced plans constitute the most ambitious program of capital spending undertaken in the postwar period and the increase in volume from last year, if realized, would be substantially greater than that realized in any year since 1947.

The largest planned increases in capital spending are in the mining, manufacturing and utilities industries. Outlays for utilities are planned at a rate 50 per cent above that for 1955, with the additional strength coming in power developments, pipe lines and the railways' rolling stock program. Both the mining and manufacturing industries intend to increase their capital spending by about 40 per cent in 1956. The increases in the manufacturing sector are largely accounted for by such export industries as paper products and non-ferrous metals and by the producers of industrial materials, such as primary iron and steel, chemicals, and non-metallic minerals. A continuing high level of expenditure is expected for housing, commercial and institutional building. Expanded highway construction programs by the provinces contribute to the substantial increase in capital spending planned by governments.

The distribution of the 1956 program between construction and machinery remains about the same, with outlays for each planned at a rate 21 per cent above the rates for last year. Total expenditures for new construction may reach $5,162 millions, compared with $4,273 million in 1955. The major increase is in non-residential construction where planned outlays are 30 per cent above the 1955 total. The emphasis will be on industrial building and on such engineering work as power projects, pipe lines, roads and mining developments. Expenditures for residential construction are placed at $1,574 million, compared with $1,496 million last year. Planned purchases of machinery and equipment call for outlays of $2,367 million compared with $1,957 million last year.

Industrial Production.—The preliminary estimate of Canada's composite index of industrial production for 1955 averaged 265·9, 8·7 per cent above the 1954 figure of 244·6 (1935-39 = 100). The December index stood at 265·5, up 10·3 per cent from 240·6 a year earlier.

The annual index for manufacturing rose 7·4 per cent to 270·1 from 251·4 in 1954, the non-durables component increased 6·1 per cent to 235·2 and the durables index advanced 9·1 per cent to 324·9. The year's mining index rose 15·6 per cent and the electricity and gas index was up 8·3 per cent.

For the month of December the manufacturing component of the industrial production index rose by 9·8 per cent to 266·1 from 242·4 a year earlier, the mineral output index advanced 17·4 per cent to 250·7 from 213·5.

The index of non-durable manufactures was up 8·5 per cent in December to 229·9 from 211·9 in 1954. All groups recorded increases in this comparison with the output of rubber products advancing over 28 per cent. Gains of between eight and ten per cent were shown by the tobacco products, textiles, clothing and paper products groups. The foods and beverages, printing and publishing and chemical industries showed smaller gains.

The composite index of durable manufactures for December stood at 322·8, 11·3 per cent above the corresponding figure of 290·1 in 1954. Output of iron and steel products recorded an advance of nearly 35 per cent, production of non-metallic minerals and wood products rose over 14 and nearly 12 per cent, respectively. Output of electrical apparatus advanced nearly nine per cent. Small declines were shown in the production of transportation equipment and non-ferrous metal products.

Prices.—The general wholesale price index advanced to 222·0 in January, 0·3 per cent above December's 221·4 and 2·9 per cent above last year's January index of 215·7 (1935-39 = 100). The composite index of Canadian farm product prices at terminal markets receded 0·2 per cent from 197·1 to 196·7 between December and January; the index for the animal products series moved down 1·7 per cent from 239·0 to 235·0, as a result of sharply lower egg prices and smaller declines in prices for steers and hogs. The field products index advanced 2·1 per cent from 155·2 and 158·4 mainly as a result of considerably higher prices for potatoes.

The consumer price index (1949 = 100) decreased 0·3 per cent from 116·8 to 116·4 between January 3 and February 1, 1956. The February 1, 1955 index was 116·3. The food index was responsible for the decline; moving from 111·5 down to 109·9, a 1·4 per cent decline. This was the largest decrease in more than two years and it brought the index to its lowest level since January 1951. Further decreases in eggs and pork cuts, combined with lower prices for all beef cuts, oranges, margarine, coffee, grapefruit and lettuce more than offset scattered increases including those for potatoes, tomatoes and apples.

Exports.—Canada's total domestic exports totaled $4,282 million in 1955, ten per cent above the 1954 export figure of $3,881 million and only slightly below the 1952 all-time peak value. Record export shipments were made of forest products, metals, minerals and chemicals. Major individual commodities showing sharp gains in exports were planks and boards, wood pulp, newsprint paper, iron ore, aluminum and products, copper and products, nickel, zinc, asbestos, petroleum and fertilizers. Wheat and other grains, wheat flour, and fish and fishery products were among the exports with lower values.

Exports to the United States reached an all-time record value of $2,559 million in 1955, 10·5 per cent above the 1954 total of $2,317 million. These exports accounted for about 60 per cent of the year's total domestic exports, about the same proportion as for the previous year. There were increased shipments of forestry products, metals, non-metallic minerals and chemical products. Largest group decreases were in agricultural and vegetable products, and animals and products.

Shipments to the United Kingdom rose 17·7 per cent from $653 million in 1954 to $769 million in 1955 and accounted for nearly 18 per cent of all domestic exports. Largest increases were in agricultural and vegetable products, wood and paper, and non-ferrous metals. Declines were recorded for animals and products, and miscellaneous commodities. Domestic exports to the rest of the British Commonwealth amounted to $237 million in 1955, $42 million above the total for the previous year. There was a 14 per cent decrease in domestic exports to Latin American countries; total exports to European countries increased 11 per cent.

The total export value of agricultural and vegetable products in 1955 was $752 million, compared with $803 million in 1954; animals and animal products' exports were valued at $264 million in 1955 compared with $270 million the previous year.

Continued buoyancy marked Canada's export trade in January 1956. Exports rose nearly 18 per cent from $310 million in January 1955 to $365 million in January this year. There was a $34 million increase in exports to the United States and a $10 million increase in exports to the United Kingdom.

FOREIGN MARKETS FOR CANADIAN APPLES[1]

G. J. DOBSON and D. W. WARE

Over the past 20 years production of apples in Canada has averaged a little more than 14 million bushels annually (Table 1). Before World War II an average of over six million bushels or 46 per cent of the crop was exported. Though apple exports have declined in the postwar period, between two and three million bushels a year continue to be exported. In 1955, a record crop of 19·4 million bushels, 36 per cent above the 1949-53 average was produced. Because of the larger crop in 1955 export markets are even more important to Canadian apple growers.

In general, foreign countries may be divided into three categories with respect to the possibility of marketing apples in them: (1) those in which Canadian apples are already being sold, or in which they stand a good chance of being sold; (2) those markets in which there is only a limited possibility of selling; and (3) those in which, under present conditions, there is no possibility of any sales.

Table 1.—Utilization of the Canadian Apple Crop—Averages for 1934-38 and 1949-53, and Annual Figures for the 1954-55 Crop Year

(Crop year, July 1 to June 30)

Period	Production	Fresh Exports		Processed	
		Quantity	Proportion of crop	Quantity	Proportion of crop
	—000 bu.—		per cent	—000 bu.—	per cent
1934–38	14,093	6,483	46·0	1,965	13·9
1949–53	14,340	3,121	21·8	3,312	23·1
1954–55	14,550	2,097	14·4	5,036	34·6

Markets in which Canadian Apples are Presently Being Sold

United States—In the past six years the United States has been the principal export market for Canadian apples, taking an average of nearly two million bushels or 60 per cent of our exports and as much as 92 per cent in the years 1952-53 and 1953-54 (Table 2). This is in sharp contrast to the prewar period when sales to the United States were less than one per cent of the total Canadian apple exports.

The United States, however, supplied the bulk of apples imported into Canada; in the 1949-54 period the quantity averaged about 0·5 million bushels annually so that Canada's net exports to the United States were 1·5 million bushels in that period. In 1954-55, as a result of larger Canadian imports and a decline in exports, our net exports to the United States were only 232 thousand bushels.

The United States produces about 110 million bushels of apples annually. During the period 1949-54 an average of 64 per cent of the crop was processed, 34 per cent consumed domestically as fresh fruit and two per cent was exported. Before World War II the United States each year exported about eight million bushels, most of which was purchased by the United Kingdom. Now, however, only about two million bushels are exported and Canada is the chief market. Smaller but substantial shipments are also made to Cuba, Venezuela and the Philippines.

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[1] Most of the information, except that relating to the United States and the United Kingdom, was compiled from reports from Canadian Foreign Trade Service representatives.

The consumption of fresh apples per person in the United States has declined from an average of 28 pounds in 1940-44 to 23 pounds in 1949-53. In the same periods the consumption of processed apple products increased from 3.3 pounds to 5.6 pounds per person.

Offsetting the decline in per caput consumption of fresh apples is the continuing growth of the population of the United States. It is probable therefore that the United States will continue to provide a market for about the same quantity of apples as was taken during the last five years, or between 1.5 and two million bushels annually.

United Kingdom.—During the five-year period 1949-54 an average of slightly over one million bushels or 36 per cent of the apples exported from Canada went to the United Kingdom (Table 2). The United Kingdom is therefore the second most important foreign market for Canadian apples, despite the fact that no shipments were made in the 1952-53 and 1953-54 crop years.

Table 2.—Exports of Apples, Fresh, from Canada, by Country of Destination, Average 1949-54, Annual 1954-55

(Crop year, July 1–June 30)

Country of Destination	Average 1949–54	Proportion of total	1954–55	Proportion of total
	—bu.—	per cent	—bu.—	per cent
United States	1,862,069	59·7	1,219,540	58·2
United Kingdom [a]	1,132,967	36·3	785,832	37·5
Venezuela	31,189	1·0	15,540	0·7
Malay States	26,956	0·8	34,775	1·6
Bermuda	15,150	0·5	7,496	0·4
Hong Kong	12,733	0·4	6,950	0·3
Trinidad	3,053	0·1	6,310	0·3
Others [b]	36,742	1·2	20,169	1·0
Total	**3,120,859**	**100·0**	**2,096,612**	**100·0**

[a] No exports to the United Kingdom in 1952–53 and 1953–54.
[b] Includes Indonesia, British Guiana, Barbados, Jamaica, Cuba, Brazil and Hawaii.

In 1951 the importation of apples into the United Kingdom was returned to private hands and it was thought that Canada might increase its shipments to this market. However, since the balance-of-payments crisis in that year, imports, except from Australia, New Zealand and South Africa have been restricted by quota. In 1954-55 an exchange allotment of $2,475,000 was made available for the purchase of Canadian apples and 786 thousand bushels, mostly from British Columbia, were shipped to the United Kingdom. For the 1955-56 crop year the total exchange allotment is $2,712,600, of which $904,000 was made available up to December 31, 1955. With lower prices in Canada this year and an increase in the amount of dollar exchange available to importers the total quantity exported to Great Britain in 1955-56 should exceed the 786,000 bushels shipped there last year.

In the next few years, however, the demand for Canadian apples in the United Kingdom will be largely determined by (1) domestic production in the United Kingdom, (2) production in other exporting countries, and (3) the easing of foreign exchange difficulties.

During the period 1949-53 production of table apples in Great Britain averaged 25.9 million bushels, more than double the 1934-38 average. This increase in production was the result of an increase in the number of bearing trees from 9.7 million in 1947 to 11.4 million in 1951. The United Kingdom now produces 80 per cent of the apples it consumes. The rise in domestic production more than compensates for the decline in imports, which in 1954 were about 60 per cent less than in 1938.

Before 1939, the bulk of the apples imported into the United Kingdom originated in Canada, the United States and Australia. Since 1948 Australia, Italy, New Zealand, South Africa and the Netherlands have become the chief suppliers. Production in Italy and the Netherlands has more than trebled since the end of the war, and there has also been a noticeable improvement in the quality and presentation of their fruit. This suggests that even with an easing of exchange difficulties, Canadian apples will meet increasing competition in the United Kingdom and in the long run it is doubtful if exports of apples from Canada to that market will reach prewar levels. However, the United Kingdom has long been the traditional Canadian market and will probably continue to be of major importance to Canadian producers.

Cuba.—A wide range of tropical fruits is produced in Cuba, but in spite of this, about 600 to 800 boxes of apples are consumed daily. The United States enjoys a privileged tariff position in the Cuban apple market and this presents the most serious obstacle to competition from other countries. Duties on fresh apples during the period August 1 through March 31, on a 100 kilo (220 lb.) basis, are $0.60 for the United States, and $1.30 plus a surcharge of 20 per cent of the duty for Canada and other countries. During the period April 1 through July 31 the duty is $0.80 plus 20 per cent surcharge and this rate applies to all countries, including the United States.

To the extent that Canada can supply the preferred red apples (particularly Delicious) and offer them at competitive c.i.f., duty-paid, Havana prices with a reasonable continuity of supply, it is expected that a steady market could be found in Cuba.

Venezuela.—The principle suppliers of fresh apples are the United States and Canada with smaller amounts obtained from Argentina and Germany. The preferred variety is Red Delicious although in recent years White Delicious, Winesaps and Kings have been imported in increasing quantities. About half the apples are sold individually by street vendors. There is such a definite preference for Canadian Red Delicious that a premium price as high as 15 to 23 cents an apple is obtained.

There are no restrictions on the import of this fruit and the tariffs are low. The import duty at present is Bolivars 0.10 per gross kilogram (1.3 cents per lb.).

Dominican Republic.—The United States is the main supplier of apples to the Dominican Republic and Canada ranks second. Imports are mainly for the Christmas trade and favored varieties are Delicious and Courtland.

There are no restrictions on apple imports and the Dominican peso is at par with the United States dollar. The import duty is two cents per kilogram (about one cent per pound) plus 29 per cent on the f.o.b. price. Transportation difficulties have hampered the apple trade with this market to some extent. The only direct boat line operates from the east coast; sailings are irregular and ships often lack refrigerated storage space.

Trinidad.—In both 1953 and 1954 Canada was the major source of apples and supplied 63 and 90 per cent respectively of the approximately 11,000 bushels imported. Australia and the Netherlands had previously been important sources but in 1954, only the latter shipped apples and the quantity formed only four per cent of total imports.

The Trinidad market favors the best grades of red apples—varieties such as Red Delicious and Winesap are among the most popular.

Currency for payment for apple imports from Canada was made available under the British West Indies Trade Liberalization Plan, and the amount of trade is limited by the size of the allocation. It is estimated that a demand exists for 30 to 50 per cent more apples than were supplied last year if dollars were available.

Jamaica.—There is no local production of apples in Jamaica. The United States is the main supplier, with Canada second. Preferred varieties are Delicious and Winesap.

The quantity of apple imports from the dollar area is limited by the amount of exchange allocated under the Trade Liberalization Plan. For 1955-56 an additional $2 million has been allotted above the Trade Plan allocation, for trade with the United States and Canada, and some of this may be used for increased apple imports. The rates of duty are ten per cent under the British Preferential Tariff and 20 per cent under the General Tariff.

Ceylon.—About 45,000 bushels are imported annually. These are obtained mainly from Australia, Netherlands, Italy and the United States. Imports of apples are under licence. Though imports from Canada amounted to only about 12,000 pounds in 1954, a larger share of the market can possibly be obtained if Canadian prices are comparable with those of other sources.

Singapore and the Federation of Malaya.—There is no production of apples in Malaya. Australia is the main supplier of imported apples, Canadian and United States shipments arrive mostly during the three to four months of the year when no Australian supplies are available. Although Canadian sales are only one-tenth of Australian shipments, a regular demand for 30,000 to 50,000 bushels a year can be expected. In the last two years imports from Canada have been considerably higher than those from the United States.

Unlike most other export markets Malaya prefers green-skinned apples, such as the Newtown, to the red-skinned varieties. This preference makes it a valuable market as it takes a variety which might otherwise be hard to dispose of.

Markets with Limited Possibilities

Indonesia.—Indonesia does not produce apples and in the postwar years has obtained most of its supplies from Australia and smaller quantities from the United States and Canada.

Imports of apples are subject to licence and at present no regular import licences are being issued. In the last two years apple imports have been made possible through a special export inducement scheme whereby importers paid a premium to obtain exchange resulting from Indonesian exports. This scheme ended in June 1955.

Mexico.—In the postwar period total apple imports have varied from 30,000 to 90,000 bushels annually. Apples can be imported only under licences, which are difficult to obtain. However, some are issued; so, a certain amount of trade may be possible.

Peru.—Apples are grown in Peru but about 53,000 bushels are imported annually. Chile is the main supplier owing to her close geographical position and lower price. The United States is the other main source but its apples are considerably more expensive than those from Chile.

Belgium.—Control of apple imports is included in the postwar measures taken by the Belgian Government to protect domestic agriculture. In principle, no apples can be imported, except from the Netherlands, until the Belgian crop has been largely consumed. Australian apples offer the greatest competition since at the time imports can be made, they are fresh rather than out of storage.

The Netherlands.—The Netherlands is a net exporter of apples and about 4.5 million bushels were exported in 1954. Though some imports are made (266,000 bushels in 1954), the possibility of marketing Canadian apples there appears limited.

Sweden.—About ten million bushels of apples are produced in Sweden annually and imports are only permitted during certain seasons of the year.

The bulk of the imports comes from the southern hemisphere (Australia and Argentina). Italy is also a major supplier. A small import quota for North American apples has been made available in 1955-56.

West Germany.—Italy, the Netherlands and Belgium supply most of the apple imports. However, because of the small crop in Germany in 1955, this year for the first time since 1938 sales of Canadian apples have been made to West Germany. It is expected that between 100 and 200 thousand bushels will be shipped there.

Ireland.—Importation of apples from countries other than the United Kingdom is prohibited during "control periods" except under licence. In practice, no imports enter except when no local supplies are available, usually in the spring and early summer.

Philippines.—Traditionally the United States has been the principal supplier. Apples from the United States enter duty-free whereas those from other countries are subject to a tariff.

The United States military bases in the Philippines offer a small but accessible market, purchasing 40,000 to 60,000 pounds of apples a month. These imports are duty and tax free and do not require foreign exchange permits. There may therefore be some possibility of Canadian sales in this market.

Panama, Costa Rica, Belgian Congo, Egypt and Switzerland.—There are indications that very small quantities of Canadian apples may possibly be exported to these markets but transportation difficulties, import quotas and nearness of other suppliers puts severe limitations on the amounts likely to be taken.

No Market Possibilities

In several countries, under present conditions, little or no market for Canadian apples appears to exist. Many of these countries produce sufficient apples for their own use and a few are exporters. Among these are Australia, New Zealand, South Africa, Argentina, Chile, Uruguay, Pakistan, Afghanistan, Iran, Lebanon, Israel, Denmark, Spain and France. The shortage of dollar exchange with the resultant currency restrictions is another important reason for the exclusion of Canadian apples from some markets. Several of the producing countries have exchange restrictions which make the importation of apples from the dollar area difficult or impossible. Exchange restrictions also operate against imports of Canadian apples in India, Central Africa Federation, Norway, Colombia and Brazil.

Some dollar-short countries import apples through bilateral agreements with soft-currency countries; Brazil, Israel and France are among those obtaining supplies by this means. In other markets the tariff structure serves to exclude Canadian apples. In Guatemala as a result of a unique tariff differential between apples arriving by air and those by sea, Canadian apples are unable to compete in price with American shipments by air from Texas. Canada is effectively barred from Honduras market by a preferential tariff favoring apples from the United States.

Probably one of the main factors operating against a widespread expansion of the export market for Canadian apples is the wide distribution of other exporting countries in relation to deficit markets. Argentina and Chile have an advantage in relation to neighboring South American markets. Denmark and Italy hold a similar position in relation to European markets, and Lebanon a like one in the Middle East. The proximity of the Union of South Africa to the Central African Federation and other African countries and of Australia and New Zealand to the southeastern Asian markets provides a competitive advantage to those exporting countries. Most of the supplying countries are also soft-currency countries and this provides them with a further advantage in selling to dollar-short markets.

In the long run it would appear therefore that Canadian apple growers will continue to rely on the United States and the recently re-opened United Kingdom market for their main export outlets. Smaller quantities above normal requirements for the main markets, and some excess in years of bumper crops, will continue to move to other markets, but no major expansion in the number and size of the other export outlets appears likely.

ORGANIZATION AND MANAGEMENT PRACTICES OF CATTLE RANCHERS IN SOUTHWESTERN SASKATCHEWAN

S. R. Burkell

A previous article on the cattle ranching enterprise in southwestern Saskatchewan dealt with the marketing practices of the cattle rancher.[1] The present article will continue the discussion of this enterprise with a review of some of its production aspects, namely, ranch organization and production and management practices followed by ranchers at the time of the survey in the fall of 1953.

Land Utilization and Tenure.—The total land area of the 38 ranches surveyed in 1953 comprised about 451,000 acres. Most of the land was in native range, the total acreage being distributed as follows: native range, 95.3 per cent; native hay, 0·4 per cent; dry tame hay, 1·3 per cent; irrigated tame hay, 1·5 per cent; dry cropland, 1.4 per cent and irrigated cropland, 0.1 per cent. The ratio of harvested feed land to total land area varied between ranches depending on the suitability of land for feed production and the availability of off-ranch feed supplies. Variations in this ratio, between ranches, were from a low of 1.3 per cent of the total land area to a high of 17 per cent. The ranches in the short grass section used much larger acreages for the production of field crops than those in the Cypress Hills submontane and mixed prairie grassland areas. This was largely due to the rough topography and the frost hazards prevailing in the latter areas.

About 85 per cent of the total land area was held under leases. The main type of lease was the "Provincial" long-term grazing lease. A few ranchers reported holding summer grazing permits for the use of Provincial Park and Forest Reserve lands. The "deeded" parcels of land were generally those on which the ranch headquarters were located, those having desirable water facilities and those suitable for crop and hay production. None of the ranchers interviewed reported the renting of privately owned land for grazing purposes or the use of community pastures.

Type and Size of Ranch Enterprise.—One of the common ways of describing a type of cattle ranch is by reference to the age of the animals sold. The survey showed five types of ranches: cow-calf, cow-yearling, cow-steer (2 and 3 years), mixed herd and the rancher-feeder type (Table 1). In each case a certain proportion of the breeding stock is culled each year but another age group constitutes the main basis of production. The age classification is somewhat misleading as the animals are usually "long" or "short" in their age classification.[2] The popularity of the mixed herd type of ranch is largely attributed to the flexibility that may be achieved therefrom.

Size of ranch may be measured in terms of acreage in the ranch unit. The cattle ranches varied in size from 1,160 acres to 44,320 acres, the average size being about 12,000 acres (Table 1). The smaller size ranch predominated, 84 per cent of all ranches being less than 15,000 acres in size.

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[1] *The Economic Annalist*, Vol. XXIV, No. 5, October 1954, p. 108.

[2] See *The Economic Annalist*, Vol. XXIV, No. 5, October 1954, p. 109 for data regarding the usual ages of marketing.

Grazing and Feeding Practices.—The ranchers preferred a division of the range into a number of different pastures, the broadest division consisting of separate summer and winter fields, instead of a continuous grazing of the native range. For the winter pastures the grass was left ungrazed throughout the growing season thereby providing better grazing during the winter when feed requirements were high. The total acreage in winter grazing was lower than that for summer grazing, being only about one-third of the total native range.

The summer grazing season for all ages of cattle averaged 6.4 months. Commencement of summer grazing was generally delayed until completion of calving in April and May. The date of removal from summer pastures varied widely between ranches, some reporting the removal as early as September 1-15 and others as late as December 30. The average acreage of native summer range per animal-unit-month[1] in 1953 was 3·38 acres. Winter grazing usually lasted about three months and the average rate of grazing per animal-unit-month (excluding calves was 5·5 acres).

Winter grazing being insufficient to meet all feed needs during the winter season all ranchers had to provide supplementary feeding during that season. According to information obtained from the survey, calves did very little winter grazing.

Table 1.—Distribution of Ranches According to Size and Type of Enterprise, Thirty-Eight Ranches, Southwestern Saskatchewan, 1953

Size of ranch	Type of Ranch						
	Cow—calf	Cow—yearling	Cow-steer (2 and 3 years old)	Mixed	Rancher-feeder	Total number	Per cent of total
—acres—	—number—						
0—4,999	3	3	....	2	....	8	21·1
5,000—9,999	3	1	2	6	1	13	34·2
10,000—14,999	....	2	2	7	....	11	28·9
15,000—19,999							
20,000—44,999	1	1	....	4	....	6	15·8
Total	**7**	**7**	**4**	**19**	**1**	**38**	**100·0**

The average feeding period for calves was reported as five months and the daily ration averaged 2·8 pounds of grain and 13 pounds of hay or sheaves. A few ranchers fed concentrates to the calves. The common practice was to turn the bulls in with the calves for the winter and then feed for about six or seven months in order to have them in better condition for breeding. The average ration for bulls was reported as 6.5 pounds of grain and 18 pounds of hay or sheaves.

The general practice in winter management of older animals was to let them graze as long as conditions were suitable. Supplementary feeding was reported only during more severe winter conditions and towards the latter part of the season when the foraging ability of many animals was reduced. Up to three months of supplementary feeding was reported as a general practice for older animals. The feed largely consisted of hay and to a lesser extent sheaves or straw. The average rate of feeding was reported as 18.5 pounds

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[1] Animal units were calculated as follows:

Cow	1.0 A.Us.	Yearling (12–18 mo.)	0.78 A.Us.
Calf (up to 6 mo.)	0.2 "	Yearling (18–24 mo.)	0.85 "
Calf (6–12 mo.)	0.5 "	2-year steers	1.06 "
		3-year steers	1.12 "

per animal per day. In addition some of the animals in very poor condition were generally fed grain for about one month at the rate of 2.5 pounds per animal per day.

Breeding Practices.—The usual breeding season on ranches in this area extends over a period of two to four months, starting between the last week in June and the end of the second week in July and ending about the time when marketing begins.[1] As a rule, the bulk of the calf crop is timed to drop in April and May. Earlier breeding is avoided because of the risk of losing calves in the occasional late winter or early spring storms. Most ranchers favored a short breeding season because this gives a more uniform calf crop. If the breeding season is extended beyond September 1, the calves are smaller at the beginning of winter feeding. Also the cows do not go into the winter in as good condition, which makes it necessary to feed for a longer period during the winter.

Two-thirds of the ranchers interviewed reported using breeding pastures. Such pastures were only large enough to furnish grazing for the cow herd during the breeding season. The smaller pastures contributed to larger calf crops because the bulls are less likely to be separated from the cow herd than on a large pasture. Also, by having separate pastures the breeding is confined to the required number of animals. One of the ranchers that practiced open range breeding employed a rider during the breeding season to keep the bulls scattered among the herd.

The majority of the ranchers followed the practice of breeding heifers and cows two years old and over. Ten of the 38 ranchers reported breeding yearling heifers and two ranchers reported breeding both yearling and two-year old heifers. The age at which cows are culled out of the breeding herd varied between eight and 12 years with the average for all ranches being 9.1 years. In addition all ranchers reported culling their breeding stock on the basis of performance and quality as well as age. About nine per cent of the total breeding stock was registered stock in 1953, and the remainder consisted generally of high quality grade animals.

The number of cows per bull ranged from 20 to 40 and the average was about 31. The smaller ranches reported higher ratios of cows to bulls. Ranchers using breeding pastures also reported higher ratios than those practicing open range breeding. Most of the ranchers kept spare bulls in case something happened to one of the regular breeders. Bulls were usually traded off after the second or third year to prevent inbreeding of the herd. All the ranchers used purebred bulls.

Other Management Practices.—Large calf crops and low death losses are common objectives among ranchers. Ranchers reported an average calf crop weaned of 85 per cent in 1953 and about 88 per cent as a longer-time average calf crop weaned. Usual death losses for all classes ran up to three per cent each year. The highest death losses occurred among the calves, being 6.4 per cent of the total number of calves born in 1953. At the same time losses in the breeding stock were 17 per cent; yearling, 1·6 per cent; and other stock, 0.9 per cent.

Preventive measures taken by ranchmen against death losses from disease and insects include the almost universal practice of vaccinating against blackleg and malignant edema. Calfhood vaccination against brucellosis (Bang's Disease) was reported by 32 of the 38 ranchers visited. Immunization against hemorrhagic septicemia was also practiced by most of the ranchers. Occasional treatment of coccidiosis and the spraying for lice and flies was reported.

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[1] See *The Economic Annalist,* Vol. XXIV, No. 5, October 1954, p. 109.

Other operations performed by ranchers during the year include castration, dehorning and branding. The castration and dehorning operations were generally performed shortly after birth and before the calves were two weeks old. All the ranchers reported using the knife for castration and caustic paste for dehorning. A few of the ranchers delayed these operations until branding time in the early part of July. For the few calves and yearlings which missed the early dehorning, gougers were used in the late fall or early spring.

LANDLORD-TENANT RELATIONSHIPS AND EFFECTS ON CONSERVATION FARMING[1]

S. C. HUDSON

The history of land tenure in Canada and the United States is very similar. Although some of the earlier settlement policies were based on the feudal system under which large tracts of land were granted to a few privileged individuals to be operated under a form of serfdom, the inherent desire of early settlers to own land, together with its abundance and the prospect of capital gains as an incentive to land-clearing and improvement, resulted in governments in both countries consistently following policies to promote farm-operator ownership. In spite of these policies, however, the importance of tenancy has continued. It has followed an upward trend, punctuated at intervals by temporary declines. In Canada the percentage of farms operated by straight tenants increased from 8·6 per cent in 1900 to 12·9 per cent in 1940 but dropped back to 7·2 per cent in 1951.[2] In the United States the percentage of full-tenant farms increased slightly from 35·3 per cent in 1900 to 42·4 per cent in 1930 but declined to 26·8 per cent in 1950.[3]

The difference in the rate of tenancy in the United States and Canada can perhaps be attributed to the greater importance of cash crops in the United States and to the developments which have given rise to share cropping in the South, as well as the fact that Canada is closer to the pioneer settlement stage of development. Also, traditional customs and small farms in some areas of Eastern Canada have not been conducive to the development of tenancy. Since our farmers usually consider tenancy as an intermediate step in the so-called agricultural ladder to ownership, much of the decrease in straight tenancy during the last decade can be attributed to improved net farm income which enabled many tenant farmers to purchase farms. In the United States the Bankhead Jones Farm Tenant Act of 1937, under which government assistance is provided for the purchase of farms by tenants, and more generous credit terms generally have undoubtedly been important factors in decreasing tenancy.

Tenancy varies greatly between and within different regions. In 1950 less than seven per cent of the farms in the North East were tenant operated as compared with 34 per cent in the South, 24 per cent in the North Central and 13 per cent in the West. Within regions the concentration of tenant farms in individual counties ranged as high as 80 per cent. Similarly in Canada the proportion of tenant operated farms was less than two per cent for the Maritime Provinces and Quebec, six per cent for Ontario, 13 per cent for the Prairie Provinces and six per cent for British Columbia.

The most important change in the current land tenure pattern has been in the part-owner part-tenant group. Although in the United States as a whole part-owner farms decreased by 6·4 per cent between 1930 and 1940, they increased by 34 per cent during the next ten-year period to account for 15 per cent of all farms in 1950. In Canada part-owner farms have followed a similar trend and in 1951 also made up nearly 15 per cent of all farms. It is seen, therefore, that about 42 per cent of the farms in the United States and 22 per cent in Canada are directly concerned in landlord-tenant relations.

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[1] Based on a paper presented at the 1954 Annual Meeting of the Soil Conservation Society of America.

[2] *Census of Canada.*

[3] *Farm Tenure, A Graphic Summary, 1950.* United States Department of Agriculture and United States Department of Commerce, Washington, D.C.

The average size of farm in the United States has increased by about one-half since 1900, the greater part of this increase having occurred since 1940. Much of this increase in size has come about through renting land. While the size of fully-owned farms has not changed materially, both partly-owned and fully-rented farms have more than doubled. In 1950 fully-owned farms in the United States averaged 135·6 acres compared with 506 acres for partly-owned farms and 146·8 for tenant farms.

Since tenancy also tends to be more prevalent in areas where the land is highly productive and thus more valuable, the average value of tenant and part-owner part-tenant farms is greater than for fully-owned farms. Full-owner farms averaged $10,700 compared with $12,900 for tenant farms and $25,100 for part-owner farms. A somewhat similar picture may be shown for Canada.

The output of farms dependent wholly or in part on rented land accounted for over half of the total value of farm products sold in the United States in 1949. These two groups made up 49 per cent of the sales of livestock and livestock products and 62 per cent of the value of crops sold.

One of the greatest problems confronting the would-be farmer today is the greatly increased capital investment in real estate, stock and equipment in a farm business of an economic size. For commercial farms the average investment per farm has more than doubled in the last decade. In addition to increased acreage in farms, increased mechanization has been the principal factor in this greater investment.

The average young man starting farming has only a small part of the capital required and it is to be expected that he should have to depend to an increasing extent on private or corporate investors or governments to supplement his personal financial resources. This capital may be provided on a limited risk basis in the form of farm loans as debt capital, or on a risk-sharing basis as equity capital. Farm credit institutions have increased the proportion of the total capital which they will put into a farm business. The farmers, however, must assume the responsibility for servicing this large indebtedness as a fixed cost with the result that his financial position becomes more hazardous in the face of a variable farm income. It is likely, therefore, that in the future the landlord, both private and corporate, will play an even more important part in the financing of farming through his willingness to share the capital risks with the farm operator.

Characteristics of Landlord-Tenant Relationships

Landlord-tenant relationships in the United States and Canada are characterized by a degree of informality which has long been a matter of concern to students of land tenure. The conditions under which the landlord temporarily transfers to the tenant part of his rights arising from ownership are more often than not by word of mouth. A number of studies of farm tenancy estimate that well over 50 per cent of farm leases are oral. Even those which are in written form are usually far from adequate in their provisions. Many studies indicate that landlord-tenant relations are generally harmonious and that tenants welcome consultations with landlords on matters pertaining to management. So long as harmonious relations exist between the parties concerned, some of the contractual weaknesses resulting from this informal type of understanding do not become so apparent. It is often only in the case of dispute and the reference to a court of law that the disadvantageous position of the tenant really comes to light.

Types of Lease.—Tenant farmers rent land under a variety of conditions. The type of lease used in an area is influenced by type of farming, the resources at the disposal of each party, variability of weather and of prices of farm products, expectations with respect to price-cost relationships and, finally, by the custom of the community. In the United States crop-share renting is the most common, accounting for 29 per cent of all tenant arrangements. The next most numerous class is croppers which make up 24 per cent of all tenants. Cash tenants represent 15 per cent and share-cash tenants eight per cent of all tenant farms. The occurrence of these several rental arrangements varies greatly between areas. Regionally cash tenants are most common in the Northeast, share-cash tenants in the North Central region, croppers in the south, and crop-share tenants in the West. Livestock-share leasing occurs most frequently throughout the corn belt area. In Canada the crop-share lease is the most important basis of rental making up over 50 per cent of all tenant arrangements. It occurs particularly in connection with grain production in the three prairie provinces of Manitoba, Saskatchewan and Alberta. In Ontario, the only other province where tenant farming is important, cash renting is the most common type, with crop-share renting occurring in areas where tobacco and other cash crops are important.

In share leasing, custom has established that the rental payment be such shares as one-quarter, one-third or one-half of the principal cash crops grown. In the Prairie Provinces in Canada the most common basis of rental is one-third share of the wheat and coarse grains grown with the landlord providing the land and paying the taxes.

In one county of North Dakota 56 per cent of the leases were one-quarter share and 37 per cent were one-half share.[1] The one-quarter or one-third share leases provide that the landlord furnishes the land, pays taxes and maintains the buildings in repair. The one-half share calls for additional expenditures by the landlord for seed used and one-half of harvesting costs.[2] A somewhat similar basis of share-leasing is used in other areas, the share of the crop paid by the tenant and the contribution of the landlord varying with the crop and local custom. Cash rentals are established largely on the basis of rates in the area concerned while arrangements under livestock share leases vary between individual cases depending on the relative contribution of each party.

Stability of Occupancy.—Most farm leases are for a period of one year, the exception being a small proportion running from three to five years. Provision for renewal is not usually made in the lease with the result that the farm tenant in United States and Canada lacks security of tenure. In the United States, the average number of years on present farm as reported in the census for 1950 was 16 years for full-owners, 14 years for part-owners and six years for tenants.[3] Over 63 per cent of the tenant farmers had been on the present farm less than five years. In Canada the numbers of years on present farm averaged 13 years for full-owners, 12 years for part-owners and four years for tenants, whereas 55 per cent of tenants had been on their present farms less than five years.[4] Although a recent study in Ontario showed 75 per cent of the share rental agreements and 48 per cent of the cash rented farms to be on a year to year rental basis, leases usually ran for several years. As a result of research and educational work the average period for which a tenant remains on a farm has lengthened somewhat. Moves from one farm to another are costly to the tenant. However, the uncertainty of his period of tenure results in much greater costs, both in terms of current production and in the deterioration of the land and buildings on farms having frequent changes in occupants.

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[1] Schaffner, L. W., *Economics of Grain Farming in Renville County, North Dakota*, N.D. Agr. Exp. Sta. Bul. 367, 1951.

[2] Kristjanson, B. H. and Solbery, E., *Farm Rental Bargaining in North Dakota*, N.D. Agr. Exp. Sta. Bul. 372, 1952.

[3] *Farm Tenure, A Graphic Summary, 1950*, United States Department of Agriculture and United States Department of Commerce, Washington, D.C.

[4] *Census of Canada, 1951.*

Other Provisions.—The most frequent provisions in farm leases have to do with the condition in which the farm should be left when vacated by the tenant. These usually refer to the amount of plowing to be done or the amount of new seeding of grasses. Reference is made occasionally to farm practices to be followed. Most frequently, however, leases lack detailed stipulated provisions of any consequence. Because of the short term nature of leases, compensation to the tenant for improvements is only rarely mentioned. Similarly the desirability for providing for a means of arbitration of disputes is usually overlooked.

Tenure Status and Farming Efficiency

The tenure status of farmers affects the manner in which they organize their resources of production and thus the final products of their efforts. Owner operators who have no debt have the greatest freedom in combining land, labor and capital in such a way as to maximize their incomes. Having a high degree of security with respect to the length of his occupancy of a farm, he is encouraged to combine his resources in such a way as to maximize production over a long period of time—usually his lifetime and perhaps also the lifetime of his son. A full owner whose farm is mortgaged heavily has a lower degree of security. As a result he places a premium on those enterprises which will bring an early return. In the process of rationing his operating capital he often postpones or reduces expenditures which are postponable, even if it may mean a decrease in his future income.

A heavy debt burden tends to stimulate heavy cropping, particularly under conditions of a falling price level, which makes it more difficult to meet regular payments.[1] Since the expected period of occupancy by tenants is not so long as that of mortgaged owners, a tenant cannot plan as far into the future as an owner in making investments, in starting new enterprises or in adopting improved practices. For a tenant without a high degree of security of tenure, expenditures must be expected to produce immediate returns or they will not be undertaken.

Production on rented farms may also be affected by the type of rent paid. A cash tenant must make a definite commitment in advance of the production period as to the amount of rental to be paid. The cash tenant, therefore, must himself assume the risk in connection with a possible lowering of prices and yields during the production period. As a result, a cash tenant usually prefers short-term low-risk enterprises for his farm rather than those which have a higher degree of risk and produce returns longer in the future even though these enterprises might offer greater opportunities for higher income. Because of this element of risk, there is also some tendency for cash tenants to select farms with a lower annual rent in order to keep their fixed commitment to a minimum. This tends to create a rental premium for farms of small size and lower productivity in terms of the income which they may be expected to produce. It is also common for cash tenants to be short on working capital, livestock and equipment. From the standpoint of an optimum combination of resources, therefore, there is a tendency for cash tenants to apply large amounts of labor relative to land and mobile capital.

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[1] Schieckele, R., Himmel, J. P. and Hurd, R. M., *Economic Phases of Erosion Control in Southern Iowa and Northern Missouri*, Iowa State College of Agriculture and Mechanical Arts, Bulletin No. 333, 1955, p. 224.

Production on share rented farms is affected differently. Since the rent is in the form of a share of the final product produced on the farm variations in price and yield are shared by landlord and tenant. The efficiency in the use of resources, however, may be influenced by the manner in which costs and returns are shared. If, for example, the tenant pays all of the cost of fertilizer and receives only a part of the additional production resulting from its use, less fertilizer will probably be used than if the costs were shared in the same proportion as the production is divided. In the same way, if the proportion of the returns from a number of enterprises which is to be received by the tenant does not take into account the difference in the costs and returns from the different enterprises, the tenant will put more of the resources under his control into those enterprises from which he receives the largest share.

Effects of Rental Arrangements on Conservation Farming

Considerable attention has been given in the literature on land tenure to the effect of landlord-tenant arrangements on conservation. Tenants and tenancy have long been held generally responsible for much of the difference between actual practices in soil use and practices that would further long-time national interest. Many of the statements, however, are general in nature and are not based on studies which report specifically on a comparison of conservation farming between owner-operators and tenants. Schickele and Himmel[1] found a higher percentage of the more erosive inter-tilled crops and a lower percentage of grasses and legumes on farms operated by tenants who were not related to the landlord as compared with farms operated by owners in Iowa. It was also found that tenant farmers had fewer livestock to supply manure for soil building. As a result the degree of erosion was much more serious on tenant farms. Because of a greater interest on the part of the landlord in "related" tenants (sons, sons-in-law, etc.) conservation practices on their farms did not differ greatly from owner-operator farms. The same study revealed that farms operated under a crop-share lease had fewer livestock and a higher percentage of their land in soil depleting crops than farms under a livestock-share lease. This means that soil resources are more seriously exploited under the crop-share than under the stock-share lease.

Heady and Jensen in a recent study in Iowa also showed that share renters follow a cropping pattern which is not conducive to soil conservation.[2] These results are further substantiated by a recent study of farm practices in Saskatchewan which indicates that certain conservation measures are related to tenure.

Soil conservation requires long-time planning of farm practices since resources devoted to the conservation of the land are often slow in yielding returns.[3] The length of time a farmer expects to remain on the same farm influences every major decision in the planning of his crop and livestock system, his farming practices and his living conditions. A tenant farmer who has no assurance from the landlord that he may be allowed to stay on the farm for several years, or who himself is ready to move to another farm at any given opportunity, naturally has a different attitude towards the soil than the owner operator who builds up a permanent home for himself and his family and has a direct interest in keeping up the soil fertility as well as the buildings and permanent improvements of his farm. Soil conserving practices may not greatly affect the immediate income of the user of the land but they are of vital concern to future generations. It is essential that obstacles to the optimum use of resources from the standpoint of long term returns should be removed from landlord-tenant agreements.

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[1] Schickele, R. and Himmel, J. P., *Problems of Land Tenure, in Relation to Land-use Adjustments,* Land Use Planning Publication No. 7, Resettlement Administration, Washington, D.C., 1936.

[2] Heady, E. O. and Jensen, H. R., *The Economics of Crop Rotations and Land Use,* Iowa State College Agr. Exp. Sta. Research Bul. 383, 1951, p. 456.

[3] Heady, E. O. and Scoville, O. J., *Principles of Conservation Economics and Policy,* Iowa State College Agr. Exp. Sta. Research Bul. 382, 1951, p. 376.

Much has been written on the weaknesses of tenancy in North America and frequent reference has been made in reports to the need for adequate tenancy legislation.[1] While much research and educational work have been carried out to demonstrate to both landlord and tenant the need for better leases, very little progress has been made in providing a legislative framework within which improvement of tenancy may be accomplished. In our efforts to bring respectability to tenancy in our two countries we can usefully look to the tenure experience of certain European countries, particularly Great Britain.[2]

Characteristics of Land Tenure in England

Land tenure in England is characterized by a high degree of tenant farming. Certain government programs, during recent periods, have fostered an increase of owner-operators, especially on small-holdings. However, the most recent statistics show that 65 per cent of the agricultural holdings in England and Wales are occupied by tenants and 35 per cent by owners. On a county basis the percentage of tenants ranges from a low of 47 per cent to a high of 86 per cent. One of the features of tenancy in England is stability of tenure. It is common for farms to have been operated with several generations of the same family as tenants.

Under wartime pressure to maximize food output in Great Britain wide powers were given to County Agricultural Executive Committees to enforce a minimum standard of "good husbandry" in farming operations. The experience of these County Committees, which have been continued on a peacetime basis, would seem to indicate that the standard of husbandry on tenant operated farms is as good or better than on owned farms and that, unlike North America, in England tenancy is not a factor contributing to problems in conservation farming.

Through the years much attention has been given to legislation relating to landlord and tenant. Since 1895, a series of Agricultural Holdings Acts have gradually lessened the powers of landlords as to provisions in tenancy agreements. The most recent of these Acts, the Agricultural Holdings Act of 1948, consolidated previous legislation and established security of tenure for efficient tenant farmers. The tenant now has complete security of tenure; he cannot be given notice to quit a farm if he is cultivating it in accordance with the rules of good husbandry.

The three most important features of the English tenancy system affected by the 1948 Act are the following:

1. *Fixity of Tenure*

Under the 1948 Act, a landlord normally must give his tenant at least 12 months' notice to quit, and this notice must expire on the annual term date of tenancy. Except in certain circumstances, the tenant has the right to object to a notice to quit. If he does so within one month from the giving of the notice, then the landlord has to apply for the consent of the Minister of Agriculture to the operation of the notice. The most important factor which the Minister must consider when deciding whether to give or withhold his consent to a notice to quit is the interests of efficient farming. Other grounds for consideration are the possible hardships caused to either party, or other claims for the land, such as its use for agricultural research or the provision of small holdings. Before giving a decision, the Minister must give both landlord and tenant an opportunity of stating their cases both in writing and verbally; the Minister's power of making such decisions is delegated to the local County Agricultural Executive Committee. If either party is dissatisfied with the decision, he has the right of appeal to the Agricultural Land Tribunal, an independent body whose decisions are final and binding. The tenant's right of objection does not hold, if, after due warning, he has failed to pay arrears of rent, or has failed to make good a remediable breach in the contract of tenancy; other conditions, such as the tenant's bankruptcy, also invalidate his right of appeal.

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[1] *Farm Tenancy Report of the President's Committee;* Prepared under the auspices of the National Resources Committee, Washington, 1937.

[2] See *Progress in Land Reform*, United Nations, Department of Economic Affairs, New York, 1954.

2. *Compensation*

The Act contains comprehensive provisions for ensuring that a tenant receive adequate compensation on the termination of a tenancy for any improvements he has carried out, and also makes provisions for ensuring that claims for such compensation are settled as fairly and as quickly as possible. Compensation is payable to a tenant in respect of long-term improvements only, if the tenant obtained the landlord's prior consent to their execution or, failing the landlord's consent, the approval of the Minister. Compensation is payable for short-term improvements such as the application to the land of purchased fertilizers, without the consent of the landlord. The tenant is also entitled to compensation for farming operations which he has carried out but from which he had not yet derived any benefit. In addition, a tenant who vacates a holding in consequence of a notice to quit is in most cases entitled to compensation for disturbance, varying from one to two years' rent. A tenant is not entitled to compensation for disturbance if he leaves as a result of notice to quit following the issue of a certificate of bad husbandry against him. This certificate may be given by the County Agricultural Executive Committee (acting for the Minister) on application by the landlord, if he can show that the tenant has been failing to observe the rules of good husbandry in his farming of the land. Either landlord or tenant may appeal to the Agricultural Land Tribunal against a proposal by a Committee to refuse or grant a certificate.

3. *Arbitration*

Where landlord and tenant are unable to agree on the amount of compensation to be paid, the Act provides that any claim by tenant or landlord on the termination of the lease be determined by an arbitrator appointed by agreement between the parties. The comprehensive right to compensation which legislation gives to the tenant makes any change in the tenancy of the farm extremely costly to the landlord and thus provides a high degree of security to the tenant. The British tenant is probably more effectively protected than any other tenant and, at the same time, safeguards are also provided for the protection of the landlord.

Action Needed

There seems to be no doubt that under present conditions tenancy in the United States and Canada is not conducive to conservation farming. As a result of the increasing capital investment required to establish a farm business of economic size, the partnership of the private and corporate investor as landlord on a risk-sharing basis with the farm operator as tenant will become even more important in the future than it has been in the past. The adaptation to our needs of those legislative measures which have been found useful as a result of centuries of experience in tenancy in England and other countries is an essential step towards making tenancy on this continent profitable, stable and respectable, both from the short-run point of view of the parties directly concerned and from the longer-run interest of the nation as a whole.

THE UNITED KINGDOM LONG-TERM FOOD AGREEMENTS

E. JASKA

Long-term government-to-government food agreements covered a great part of the United Kingdom food trade during the war and postwar years. In recent years the importance of these contracts has decreased considerably, and during the last two years the agreements covering dairy and poultry products (butter, cheese, milk products and eggs) with Australia, Denmark and New Zealand have been terminated. The 15-year meat agreement with Australia and the long-term government-to-government meat contracts with Denmark, Netherlands and Ireland were still in effect at the beginning of 1956 and so were the contracts for fats, sugar and orange juice, with some Commonwealth countries and colonies. This report reviews briefly the current status of the major food contracts.

United Kingdom-Australia Meat Agreement

The movement of Australian meat into the United Kingdom continues to be governed by the 15-year meat agreement which came into force July 1, 1952. The agreement covers Australia's total exportable surplus of beef, veal, mutton and lamb, less a quantity to be made available for other markets if so desired by Australia.

A clause of the 15-year meat agreement provided that in the event of the United Kingdom Government no longer being sole importer of meat, the exportable surplus of meat from Australia could continue to be sold in the United Kingdom market without restriction as to quantity and a schedule of minimum prices would be fixed. This clause became effective in 1954 when the United Kingdom and Australian Governments decided to cease government-to-government trade in meats and an agreement was reached on minimum prices to operate between October 1954 and September 1955.

The United Kingdom Government will make a deficiency payment to the Australian Government if the market prices in the United Kingdom average below the agreed minimum prices. When payments are made they are kept separate for each class and will be used for the benefit of the producers of the respective classes.[1] In other words, beef, lamb and mutton are each treated separately, so that if, for example, average lamb prices for a year are above the minimum schedule while average beef prices are below the minimum schedule, the beef deficiency payment will not be offset by the higher lamb prices. In the second half of the 1954-55 contract year, for instance, the realization prices for Australian beef in the United Kingdom market were 1-2d. (1·2-2·4 cents) per lb. below the agreed minimum prices and a substantial deficiency payment was due to the Australian Government at the end of the year.[2] [3] According to the Canadian Foreign Trade Service, the United Kingdom Minister of Agriculture, Fisheries and Food estimated the 1954-1955 deficiency payments at £210,000 ($583,000).

A review of the fifteen year meat agreement was completed in September 1955, and minimum prices (f.o.b. Australia) were agreed upon for beef and veal until 1961 and for mutton and lamb until 1958. The minimum prices for beef remain unchanged at 14.7d (17.2 cents) per lb. (hind quarters, 1st quality) until 1957-58. In 1958-59 a five per cent reduction will come into operation for the following three years. Lamb prices at 14.5d. (16.9 cents) per lb.

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[1] *Meat.* A Review of Production, trade, consumption and prices relating to beef, live cattle, mutton and lamb, live sheep, bacon and hams, pork, live pigs, canned meat, offals, poultry meat. p. 88. Published by the Commonwealth Economic Committee London 1955.

[2] Beef Export Payments. In: *The Meat Producer and Exporter.* Vol. 9, No. 9, p. 1. Published by the Australian Meat Board. Sydney. September 1955.

[3] 1955 Commonwealth of Australia. Twentieth Annual Report of the Australian Meat Board. Year ended 30th June 1955. p. 23. Sydney, 1955.

(1st quality) also remain at the 1954-55 level until 1957-58. For mutton the minimum price until 1957-58 is the average price paid at the end of April 1955, which would give a weighted average price of 5·8d. (6·8 cents) per lb.[1] [2]

At the 1955 negotiations it was also agreed that the quantity of "free quota" meat which can be exported to other markets for the next three years will be 10,000 tons[3] (22·4 million lbs.) per annum but this quantity can be increased by subsequent negotiations.

United Kingdom-Denmark Bacon Agreement

The price for Danish shipments of bacon to the United Kingdom in the last year of the long-term contract (October 1955-September 1956) is related to the price realized for Danish bacon in Great Britain with a minimum of 240s. per cwt. (30·0 cents per lb.) c. and f. United Kingdom port.[4] This is slightly above the price paid in the two previous contract years when the price was 237s. 6d. per cwt. (29·7 cents per lb.). If the market price is less than 270s. per cwt. (33·8 cents per lb.) the United Kingdom will pay the minimum price, but if the market price is higher, Denmark will receive 240s. plus the amount of the excess over 270s.

The London Provision Exchange quotation for Danish bacon (Selection A) was 328s. per cwt. (41·0 cents per lb.) in October 1955. This means that Denmark started off the new contract year with an estimated price of 298s. per 112 lbs. (36·7 cents per lb.) that was 58s. per cwt. (6·7 cents per lb.) above the agreed minimum. During the past few months the wholesale prices for Danish bacon in the United Kingdom have weakened, but Denmark has continued to get for its shipments of bacon higher prices than agreed minimum. The estimated price for Danish bacon (Selection A) paid by the United Kingdom was in December 33·3 cents per lb., in January and February 32·5 cents per lb.

The long-term agreement as signed in 1953 provided for the minimum shipment of not less than 90 per cent of Denmark's exportable surplus of bacon and for 1955-56 a maximum of 200,000 tons was prescribed. In the recent negotiations, however, it was agreed, that the maximum quantity to be delivered in the current year ending October 1, 1956 will be 208,000 tons as compared with shipments totaling about 220,000 tons in 1954-55.[5] [6]

The United Kingdom Government announced on February 28 that government buying of foreign bacon will cease October 1, 1956, and the United Kingdom-Danish bacon contract will not be renewed. After that date, a ten per cent ad valorem tariff will be imposed on Danish and other foreign bacon imports. However, bacon from Commonwealth countries and the Irish Republic will be admitted free of duty.

The United Kingdom has agreed to consult with the Danish Government, on request, if at any time events should occur which are likely to affect the United Kingdom market so as to cause substantial injury to Danish producers, such as introduction of global quotas and imports of subsidized bacon. A joint examination of developments on the bacon market, with particular reference to price fluctuations is to be made once a year. If at any time quantitative restrictions are applied to Danish bacon, the tariff will be suspended, and if import quotas are introduced, Denmark will be allocated 70 to 75 per cent of the total.

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[1] United Kingdom-Australian Meat Agreement. In: *Intelligence Bulletin.* Published by the Commonwealth Economic Committee. Vol. VIII, No. 5. p. 43. London. October 1955.

[2] Fifteen Year Meat Agreement. In: *The Meat Producer and Exporter.* Vol. 9, No. 9, p. 1. Published by the Australian Meat Board. Sydney. September 1955.

[3] Throughout this article ton means long ton i.e. 2240 pounds.

[4] Hundredweight (cwt.) is used with the British meaning of 112 pounds.

[5] Denmark-United Kingdom Bacon Agreement. In: *Intelligence Bulletin,* Vol. VIII, No. 5. p. 36. Published by the Commonwealth Economic Committee. London. October 1955.

[6] New Pact Puts 2s. 6d. a cwt. on Danish Bacon. In: *The Farmers Weekly.* Vol. XLIII, No. 12, p. 45 Liverpool September 23, 1955.

United Kingdom-Netherlands Bacon Agreement

In November 1955 an agreement was reached between the United Kingdom and the Netherlands Governments on the terms for the final year (October 1, 1955-September 29, 1956) of the bacon contract. The price payment procedure is similar to that for Denmark. The price for Dutch bacon to the United Kingdom during the present contract year is related to the price realized for Dutch bacon in Great Britain with a minimum of 232s. per cwt. (29·0 cents per lb.) c. and f. United Kingdom port. If the market price is less than 262s. per cwt. (32·8 cents per lb.) the United Kingdom will pay the minimum price, but if the market price is higher, the Netherlands will receive 232s. per cwt. plus the amount of the excess over 262s.[1] During the first five months of the present contract year, the wholesale prices for Dutch bacon in the United Kingdom have exceeded the level of 262s. per cwt. and, therefore, the Netherlands has received prices above the agreed minimum. The estimated prices received for bacon (Selection A) were, for instance, in October and November, 36·0 cents per lb.; December, 31·8 cents per lb.; January 1956, 31·0 cents per lb.; and February, 30·8 cents per lb. The price effective during the previous delivery period (January 1-September 30, 1955) was 213s. 9d. per cwt. (26·3 cents per lb.) c. and f. British port.

Under the bacon contract the Netherlands is to supply the United Kingdom with weekly bacon shipments ranging from a minimum of 500 tons to a maximum of 700 tons. It is expected that shipments of bacon from the Netherlands to the United Kingdom will total from 30,000 to 35,000 tons in the final contract year.

United Kingdom-Irish Republic Meat Agreement

In May 1951, a long-term contract was signed for the years 1951-56 under which the Irish Republic undertook to ship not less than 90 per cent of its exportable surplus of pigs and bacon to the United Kingdom. The number of live pigs exported was to be equivalent to the number exported in the form of bacon while the quantity of pork carcasses sent was to be agreed upon periodically. The price to be paid for live pigs or pork carcasses bears a fixed relationship to those paid to producers in the United Kingdom (2s. 6d. per score less). Bacon is bought at the United Kingdom's general import price.[2]

According to the Canadian Foreign Trade Service, the prices for Irish pork paid by the United Kingdom in the middle of February 1956 were as follows (c.i.f. London): pork carcasses 69-90 lb., 269s. per cwt. (33·6 cents per lb.); 91-120 lb., 255s. per cwt. (31·9 cents per lb.); 121-140 lb., 241s. per cwt. (30·1 cents per lb.); and 141-170 lb., 228s. per cwt. (28·5 cents per lb.)

The Anglo-Irish meat contract is to expire on April 30, 1956.

Other Contracts

Besides the long-term contracts for meat and meat products the United Kingdom has in effect some other food contracts with colonies and other countries. For instance, the list of the United Kingdom contracts contains the following additional commodities: concentrated orange juice (British West Indies), oils and fats (Fiji, Australia, New Zealand, Tolelau Islands, Cook Islands, Nieu, Tonga, Solomon Islands, Gilbert and Ellis Islands) and sugar (Australia, South Africa and the sugar producing colonies). The contracts for oils and fats will end in 1957, for concentrated orange juice in the 1959-60 crop year, and for sugar (Commonwealth Sugar Agreement) in 1962.

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[1] *Intelligence Bulletin.* Vol. VIII. No. 7, p. 37. London, December 1955.

[2] Anglo-Irish Trade Agreement. In: *Meat,* p. 92. A Review of production, trade, consumption and prices relating to beef, live cattle, mutton and lamb, live sheep, bacon and hams, pork, live pigs, canned meat, offals, poultry-meat. The Commonwealth Economic Committee. London, 1955.

In addition to the long-term food agreements described above there is a "joint declaration" between the United Kingdom and New Zealand according to which the United Kingdom Government agrees to buy, or to permit the sale of the New Zealand exportable surplus of beef and veal, lamb and mutton in the United Kingdom market without restriction of quantity for 15 years from October 1, 1952.[1]

PUBLICATIONS OF THE ECONOMICS DIVISION

The Distribution of Essex County Fresh Fruits and Vegetables, 1951. Haslett, E. A., and D. W. Ware. Farm Economics Branch, Ontario Dept. of Agriculture in co-operation with the Economics Division. Toronto, 1956. pp. 27.

The principal objectives of this study were to determine:

1. the distribution by destination of the fresh fruits and vegetables moving from Essex County during the calendar year 1951;
2. the seasonal pattern of the movement;
3. the relative quantities transported by truck and rail; and
4. any possible new markets for Essex County fresh fruits and vegetables.

The authors have organized their report into four main sections dealing with *Distribution by Markets; Distribution within Ontario and Quebec; Method of Transportation* and *Seasonality of Movement.*

Directory of Farmers' Organizations in Canada, 1955. Compiled by Constance M. Jones. Ottawa, December 1955. pp. 22.

This directory provides a list of societies and associations which deal with the interests of farm people generally, and those concerned with specific aspects of farming such as livestock production, grain growing or fruit production. Co-operative organizations are excluded as well as farm organizations the members of which reside in areas smaller than a province.

Organizations are classified on a national, regional and provincial basis. Each of these three major divisions is subdivided according to subject as follows: general, field crops, livestock (including furs), dairying, poultry, horticulture, maple products, bees, seeds.

A Graphic Presentation of Agriculture. Reference Paper 63, Dominion Bureau of Statistics. Ottawa, The Queen's Printer and Controller of Stationery. 1956. Maps and Charts. Price—25 cents.

A Reference Paper prepared by the Economics Division in co-operation with the Census Division, Dominion Bureau of Statistics. It contains maps of: Distribution of Population; Generalized Types of Farming; Farm Population; Average Value of Products Sold per Farm; Farms Reporting Tractors; Farms Reporting Electricity, Utilization of Farm Land; Occupied Farm Land Operated by Owner or Manager; Number of Part-Time Farms; maps of Wheat, Oats, Barley, Mixed Grain, Hay, Corn for Silage, Potatoes, Sugar Beets, Tobacco, Market Garden Crops, and Orchards and Vineyard Acreages; and maps of Cows Kept Mainly for Milk Purposes; Cattle Kept for Beef, Swine, Sheep and Hens and Chickens. It also includes a chart on Average Capital Investment per Farm and another on Average Size of Farm.

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[1] Wartime and Post War Bulk Purchase Contracts. In: Thirty-third Annual Report and Statement of Accounts for Year ended 30th June, 1955. p. 31. Published by the New Zealand Meat Producers Board. Wellington. 1955.

OTHER PUBLICATIONS

Income of the American People. Miller, Herman P. John Wiley & Sons, Inc. New York. 1955. pp. XVI + 206.

This is one of a series of books sponsored in the United States by the Committee on Census Monographs of the Social Science Research Council. It is the first systematic comprehensive analysis of census data accumulated since 1940 on the personal distribution of income in the United States. It is based on the national censuses of 1940 and 1950 and on a number of sample surveys of the U.S. population undertaken by the U.S. Bureau of the Census. The scope of the book is indicated by the chapter headings: *An Analysis of the Over-all Income Curve; The Role of Geographic Location and Color; Income Difference Attributable to Occupation; Age as a Factor in Income Distribution; Income and Family Status;* and *Factors Related to Recent Changes in Income Distribution.* The appendices include besides statistical data, definitions and explanations of terminology used and a discussion on the quality of census income data.

American Agriculture. Its Structure and Place in the Economy. Mighell, Ronald L. John Wiley & Sons, Inc. New York. 1955, pp. XII + 187.

According to the Preface, "This book is addressed to readers who are interested in agriculture, but who are not necessarily professional agricultural specialists. Its purpose is to present . . . a picture of the structure of agriculture, of its separate parts, of how these parts are assembled and of how the whole fits into the economy of the Nation." The author reviews the major changes in United States agricultural production and organization over the past 50-100 years, its present role and place in the U.S. economy, the aggregate size of the farm plant, the wide variation in economic size and type of farms, and the social and family characteristics of agriculture and particularly the rapid changes in these since the beginning of this century. This book will be of interest to the Canadian reader and points to the need for a similar volume on Canadian agriculture.

Government Statistics For Business Use. Edited by Hanser, Philip M. and Leonard, William R. John Wiley & Sons, Inc. New York. 1956. pp. XVII + 440.

This is the second edition of a book first published in 1946. All the chapters have been rewritten and two new chapters have been added—"International Statistics" and "Some Uses of Sampling and Sampling Aids." In addition to describing the more important types of United States statistics currently available throughout the Government, the book includes description of basic data available in the more recent U.S. censuses and of the kinds of data that may be expected from the 1955 economic censuses, including the quinquennial Census of Agriculture. The present edition refers to such important fields of economic statistics as national income, industry, agriculture, population, labor, prices and transport. It also indicates the application of these statistics to the practical decisions required of businessmen and investors.

Quebec Farm Credit Bureau. Report for the Year Ending December 31st, 1954. Quebec Farm Credit Bureau, Parliament Buildings, Quebec City. 1955. pp. 11.

A review of the operations of the Quebec Farm Credit Bureau in 1954. As stated in the report,

> The primary function of the Quebec Farm Credit Bureau is to grant loans to farmers on a long term basis and at a very low interest rate, (2½ per cent per year). By so doing, the Bureau encourages the purchase of farms, the establishment of young farmers on the land, the clearance of heavy mortgage debts and the construction or repair of essential farm buildings.

THE ECONOMIC ANNALIST

A BIMONTHLY REVIEW OF AGRICULTURAL BUSINESS

MARKETING SERVICE, ECONOMICS DIVISION
J. F. BOOTH, Chief

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**Published by Authority of the Right Honourable James G. Gardiner
Minister of Agriculture**

ANNUAL AND MONTHLY INDEX NUMBERS

Wholesale Prices, Farm Prices and Living Cost Indexes

Year and Month	General Wholesale Price	Wholesale Prices of Canadian Farm Products[a]			Farm Prices of Agricultural Products[b]	Prices of Commodities and Services used by Farmers		Consumer Price		Industrial Production
		Total[b]	Field[b]	Animal		Composite[c]	Equipment and Materials[d]	Total	Food	
	1935–39=100							1949=100		1935–39=100
1913	83·4	....	....	....	....	....	85·4	49·2	44·4	....
1914	85·4	....	....	....	....	85·3	90·2	49·6	46·0	....
1915	91·8	....	....	....	....	91·6	96·9	50·3	46·8	....
1916	109·8	....	....	....	....	100·5	101·7	54·2	51·8	....
1917	148·9	....	....	....	....	140·5	140·7	63·7	66·9	....
1918	166·0	....	....	....	....	160·2	164·1	72·0	76·9	....
1919	174·7	....	....	....	....	167·9	169·1	78·8	82·2	....
1920	203·2	....	....	....	....	186·5	190·1	90·5	94·4	....
1921	143·4	....	....	....	....	152·5	147·4	80·9	72·5	....
1922	126·8	....	....	....	....	134·1	124·6	74·9	61·5	....
1923	127·7	....	....	....	....	130·6	118·3	75·2	61·9	....
1924	129·5	....	....	....	....	131·9	122·3	74·0	60·7	....
1925	133·8	....	....	....	....	131·8	123·2	74·6	63·4	....
1926	130·3	144·4	158·5	130·2	....	130·6	119·9	75·9	66·6	....
1927	127·3	138·6	149·4	127·8	....	131·2	119·9	74·6	65·3	....
1928	125·6	136·3	134·3	138·2	....	129·3	118·3	75·0	65·6	....
1929	124·6	140·8	137·2	144·4	....	127·9	117·6	75·8	67·1	....
1930	112·9	119·5	105·8	133·3	....	117·0	105·6	75·3	65·6	....
1931	94·0	78·9	65·0	92·7	....	100·9	92·2	67·9	51·4	....
1932	86·9	65·5	60·4	70·5	....	93·3	89·3	61·7	42·8	....
1933	87·4	69·3	69·3	69·2	....	89·8	88·8	58·8	42·3	....
1934	93·4	83·5	80·5	86·5	....	95·5	96·8	59·6	46·2	....
1935	94·4	89·2	84·4	94·1	88·0	95·4	95·6	59·9	47·2	85·6
1936	96·8	97·9	102·2	93·7	96·9	98·1	98·7	61·1	48·8	94·6
1937	107·7	117·4	128·9	106·0	119·7	105·3	108·4	63·0	51·4	108·0
1938	102·0	102·9	100·9	104·8	105·0	101·7	101·2	63·7	51·7	102·0
1939	99·2	92·6	83·7	101·5	91·8	99·3	95·7	63·2	50·2	109·7
1940	108·0	96·1	85·4	106·7	96·8	106·8	101·8	65·7	52·6	131·4
1941	116·4	106·6	88·9	124·4	110·2	116·1	107·8	69·6	57·9	164·8
1942	123·0	127·1	109·7	144·6	133·1	131·6	119·2	72·9	63·4	195·7
1943	127·9	145·4	129·0	161·8	157·8	143·4	122·4	74·2	65·2	208·5
1944	130·6	155·3	144·5	166·1	172·4	148·0	126·0	74·6	65·5	212·4
1945	132·1	166·4	162·5	170·2	185·7	152·1	125·9	75·0	66·3	187·2
1946	138·9	179·5	177·9	181·2	204·1	157·0	128·0	77·5	70·0	171·9
1947	163·3	192·2	184·1	200·2	215·8	170·4	139·5	84·8	79·5	187·8
1948	193·4	232·1	200·6	263·7	255·8	197·6	173·1	97·0	97·5	196·3
1949	198·3	228·7	191·9	265·4	255·4	204·1	180·3	100·0	100·0	199·6
1950	211·2	236·7	191·9	281·4	260·8	210·4	189·9	102·9	102·6	211·5
1951	240·2	268·6	200·4	336·9	296·8	230·0	206·0	113·7	117·0	226·5
1952	226·0	247·2	216·9	277·5	274·4	243·1	215·8	116·5	116·8	233·0
1953	220·7	221·6	179·4	263·8	250·4	239·8	207·4	115·5	112·6	248·4
1954	217·0	211·8	167·4	256·2	234·8	237·2	203·3	116·2	112·2	244·6
1955	....	....	....	....	226·2	....	....	116·4	112·1	....
1955										
April	218·5	216·1	193·4	238·7	231·0	240·3	204·7	116·1	111·0	257·2
May	217·8	216·6	189·9	243·4	232·0	....	....	116·4	112·3	262·7
June	218·7	215·5	180·9	250·0	232·4	....	....	115·9	111·0	267·6
July	218·4	213·1	176·7	249·5	232·4	....	....	116·0	111·5	268·8
August	219·6	204·8	159·0	250·6	226·0	241·3	203·3	116·4	112·4	270·3
Sept	220·9	202·7	153·9	251·6	226·3	....	....	116·8	113·7	271·5
Oct	220·0	196·8	151·7	241·9	220·7	....	....	116·9	113·5	273·5
Nov	220·7	196·9	153·2	240·5	220·2	....	....	116·9	113·0	277·7
Dec	221·4	197·3	155·2	239·4	219·5	....	....	116·9	112·4	275·1
1956										
Jan	222·0	196·7	158·4	235·0	218·1	235·0	206·3	116·8	111·5	275·5
Feb	222·2	195·9	159·5	232·3	218·3	....	....	116·4	109·9	274·2
Mar	223·3	197·5	164·0	231·1	219·4	....	....	116·4	109·1	280·8

Source:—Dominion Bureau of Statistics, Ottawa.

(a) Prices at terminal markets.

(b) Subject to revision from August, 1954, to date for supplementary payments on grain.

(c) Exclusive of living costs. Includes farm implements, building materials, gasoline, oil, greases, feed, fertilizer, binder twine, seed, hardware, tax rates, interest rates and farm wage rates.

(d) Differs from composite index by exclusion of tax rates, interest rates, and farm wage rates.

THE ECONOMIC SITUATION

PART I

ANNUAL AND MONTHLY INDEX NUMBERS—AN EXPLANATION

Starting with this issue of the Economic Annalist there are some changes in the format and heading of the table "Annual and Monthly Index Numbers". Titles of the columns headed "Farm Products", "Field Products", and "Animal Products" have been changed to follow more closely those used in the Dominion Bureau of Statistics publication "Prices and Price Indexes".

These changes do not involve any modification of index series previously used. The method of computing the various index numbers of this table is explained below.

An index is a measure of change in some aspect of a group of items, the group usually being chosen so as to be representative of a larger group of items. Examples are the Index of Farm Prices of Agricultural Products, and the Consumer Price Index. Any index is of general and not particular application. The Index of Farm Prices of Agricultural Products may be rising while the prices received by, say, a dairy farmer are falling, since the fall in the prices of dairy products is more than compensated for by the rise in prices of other farm products. All the indexes discussed here should be viewed in this light.

The change has to be measured from some fixed point in time—a month or year or a number of years—termed, a base period. For instance, 1949 was chosen as the base period for the Consumer Price Index when it became desirable to replace the old 1935-1939 base. The year 1949 was the first year of stability following the war. Price controls had been removed, the unusual demand conditions of the postwar years had run their course and the inflationary pressures of the Korean war period were still in the future.

The selected base period is then studied and the level of prices, production, or other aspect in this base period is established and given the index number 100. The index number for any other period is the level in this other period expressed as a percentage of the base period level.

In constructing an index, the problem of combining dissimilar things arises. For instance, in setting up the Consumer Price Index it was necessary to establish the relative importance in the index of the prices of a bottle of milk, a package of cigarettes, a suit of clothes and a month's house rent among many other things. It is necessary to combine these by weighting according to the amount of money the consumer spends on each. In the survey conducted to establish the Consumer Price Index, it was found that the families studied devoted 32 per cent of their total expenditure to food, 15 per cent to shelter, 11 per cent to clothing, 17 per cent to household operation, and 25 per cent to other commodities and services. These then are the weights of the expenditure groups in the index. Therefore, a 10 per cent rise in food costs of the type of family whose expenditures are reflected in the Consumer Price Index should be reflected by a 3·2 per cent rise in the index. Each expenditure group is further broken down to give weights to types of expenditure within the group. To illustrate, 57 per cent of shelter expenditure was found to go to rent and 43 per cent to the expenses of home ownership. The latter are again broken down into five kinds of expenses of home ownership, each of the five given a separate weight.

The General Wholesale Price Index is a measure of the cost of buying at wholesale a great number of items—over 500 in all. These are not 500 distinct items since some are priced at more than one stage of processing.

The General Wholesale Price Index contains a number of component indexes and among these are the vegetable products and animal products components. Almost half the weight in the vegetable products component is given to products not of Canadian origin or products at too advanced a stage of processing to bear much relation to the Canadian farm. The animal products component gives 20 per cent of its total weight to furs and fish, and to such highly processed products as shoes, in which the cost of the raw product at the farm is of relatively small importance.

The Index of Canadian Farm Products measures price change at terminal markets, that is, at the earliest possible stage after the products leave the farms. The index is constructed in stages. Separate field and separate animal products indexes are constructed for both eastern and western Canada. The separate field product indexes are combined into an all-Canada field product index with the west given a 67 per cent weight and the east a 33 per cent weight. The separate animal products indexes are similarly combined but with the same weights reversed. The total index is a simple unweighted average of the two all-Canada indexes.

Prices of about 20 items enter into the making of the index, some being priced at more than one terminal market. For instance, potato prices in seven cities are used. The various grains, hay, tobacco, livestock, wool, eggs, milk and butterfat are included. Only one vegetable, potatoes, is included and no fruits. Poultry is represented by a single price quotation of Grade A dressed fowl 4-5 pounds at Toronto.

The index has a serious deficiency hampering its current use. Since the purpose of the index is to reflect prices received by farmers at a minimum number of stages from the farm rather than prices paid by buyers, the total and the field products component are subject to revision for supplementary payments on wheat, oats, and barley. These revisions can sometimes affect the index numbers almost two years in the past.

The Index of Farm Prices of Agricultural Products is designed to reflect changes in the prices actually received by farmers at the farm. The price information comes mainly from farm correspondents who report on average prices being received, regardless of grade. The sale of the 50 farm products included in the index is the source of about 90 per cent of farm cash income. Like the index discussed immediately above, its usefulness is currently curtailed by the likelihood of substantial revisions in the initial payments for western grains. For example, a 10 cent per bushel supplementary payment on wheat results in a four point increase in the index.

The Index of Commodities and Services Used by Farmers measures changes in the cost of things farmers buy; it should be emphasized that these changes are not changes in the cost of production. A summary of the weighting system is given in Table I.

These main headings, such as farm machinery, are further broken down by specific items—as disc drills, binders, etc. The index is based mainly on a study of the expenditures of 1,692 farm families, in 1938. Amendments have been made in the original weighting pattern to allow for the extensive changes in agriculture since that time, and currently a new survey is being planned to establish a more contemporary set of weights. The results of the survey and the new index which it will make possible, are not likely to be available for more than a year.

The all-Canada composite index including living costs is a simple average of the Eastern and Western indexes. The composite index including living costs which is published in the Economic Annalist, is also a simple average of the corresponding Eastern and Western indexes.

The Consumer Price Index is intended to show changes in the costs of things purchased by the majority of medium sized urban families. It is the most modern index measure of the Canadian economy in general use, in the sense that the expenditures' study from which it emanated, took place in the postwar

TABLE I—SUMMARY OF WEIGHTS—INDEX OF COMMODITIES AND SERVICES USED BY FARMERS

—	East	West
Equipment and Materials	**36·8**	**38·3**
Farm Machinery	5·5	13·9
Building Materials	3·9	3·7
Gasoline, Oil and Grease	5·0	8·7
Feed	10·4	2·9
Fertilizer	4·8	0·5
Binder Twine	0·5	1·7
Seed	3·1	3·7
Hardware	3·6	3·2
Taxes and Interest Rates	**11·4**	**13·4**
Taxes on Property	7·8	7·4
Interest on Mortgages	3·6	6·0
Wages	**11·8**	**8·3**
Cost of Living	**40·0**	**40·0**
Total	**100·0**	**100·0**

period and in that it incorporates certain technical advances not commonly employed. In particular, the weights of most of the food items are allowed to vary with the season of the year in accordance with the known seasonality of consumption habits, as they are affected by price and weather. The Consumer Price Index is a significant departure from the old Cost of Living Index whose base was 1935-39. Some 60 items have been added and some 30 discarded. The process of revision is continuous as it has to be in the midst of what may be called the merchandising revolution of the present day.

The Index of Industrial Production attempts to measure changes in the volume of net output of the mining and quarrying, manufacturing and electricity, and gas industries. As such, it is of interest to agriculture as an indication of the direction of movement in the economy as a whole.

PART II

THE CURRENT SITUATION

Prices

The Consumer Price index registered a slight gain between the beginning of March and April 1956, moving from 116·4 to 116·6, (1949=100). Current increases in the food, shelter and other commodities and services indexes were more than sufficient to offset a decrease in the household operations index. The clothing index was unchanged. A rise in the food index from 109·1 to 109·7 followed a series of moderate declines, which had been unbroken since September 1955. A substantial increase in the price of potatoes, together with higher prices for other fresh vegetables, fruits, eggs, coffee and cheese, more than outweighed further decreases for all beef and pork cuts and margarine.

The wholesale price index of industrial materials declined very slightly while the wholesale price of farm products rose by an equally small amount. Canadian farm product prices at terminal markets rose from 199·0 to 201·0 (1935-39=100) during April, thus continuing a trend which has appeared over the first three months of the year. The index for field products moved up 1·0 per cent from 167·6 to 169·2, reflecting higher prices for potatoes, rye, western hay and flax, and eastern corn, barley and wheat. Over the same period (April), animal products recorded an index gain of 0·8 per cent from 231·0 to 232·9, as price increases occurred in eggs, lambs, steers, western calves, and eastern poultry and hogs. Declines were registered on eastern markets for calves, cheese milk and fluid milk, while in the west, hogs, butterfat and raw wool were lower.

Farm Income

Recent figures issued by the Dominion Bureau of Statistics place the cash income of Canadian farmers from the sale of farm products at $2,323.3 million in 1955. This constitutes a small decline, about 2 per cent, from the 1954 level and a somewhat greater decline from the all-time high of $2,849.3 million in 1952. The decline in 1955 was entirely in the Prairie provinces.

Farm net income, which differs from cash income by including changes in the value of inventory, and in other ways, did not follow the downward trend of cash income but instead rose by about 22 per cent over the 1954 level. Again the change in the figure for Canada was heavily influenced by the change in the Prairie provinces, and more specifically by the larger inventories of grain. Preliminary figures of net income, by province, in millions of dollars, with revised figures for 1954 are as follows: Prince Edward Island 13·7 (13·3), Nova Scotia 21·5 (21·4), New Brunswick 27·3 (30·5), Quebec 293·4 (276·3), Ontario 428·4 (396·6), Manitoba 95·8 (74·5), Saskatchewan 321·8 (141·3), Alberta 213·4 (196·5), British Columbia 38·4 (39·4), Canada 1,454·3 (1,189·9).

Foreign Trade

Canada's foreign trade in commodities, both import and export, increased substantially in the first quarter of 1956 compared with the first quarter of 1955. The increase in imports, however, amounted to almost 30 per cent while exports rose by only about 10 per cent. The actual figures as released in a preliminary report by the Dominion Bureau of Statistics are: exports $1,051·5 million for the first three months of 1956 compared with $966·6 million for the corresponding period last year, and imports $1,276·7 million compared with $990·7 million. The over-all import surplus climbed to an estimated $225·2 million compared with $24·1 million a year ago. Trade with the United States resulted in an import surplus of $325·3 million against $165·9 million last year. With the United Kingdom for the three months the export surplus decreased from $98·4 million to $83·2 million.

Although first-quarter figures show both imports and exports to be rising from last year, the figures for March alone show a decrease in exports. Exports by four areas in March, with March 1955 figures in brackets, were in millions of dollars as follows: United Kingdom 49·2 (65·5), Other Commonwealth Countries 20·4 (18·9), United States 208·4 (215·1), Other Foreign Countries 55·2 (55·4), total 333·2 (354·9). The same breakdown for imports, still in millions of dollars, is: United Kingdom 33·7 (32·3), Other Commonwealth Countries 13·2 (13·5), United States 363·7 (284·9), Other Foreign Countries 55·3 (45·5), total 465·9 (376·2).

Imports and exports of commodities do not, of course, reveal Canada's over-all trade position. It may be noted, for instance, that in the securities trade Canada had a sales balance or capital inflow of $22·9 million in the first two months of this year compared with an outflow of $24·6 million in the same two months last year.

Wheat Agreement Drafted

The United Nations Wheat Conference, which held its final plenary meeting April 25, agreed to open for signature a new International Wheat Agreement to come into force on August 1, 1956. The new Agreement provides for a price range of $1.50 to $2.00 for No. 1 Manitoba Northern Wheat in bulk in store Fort William-Port Arthur and for a duration of three years. The total guaranteed quantities inscribed in the Agreement by six exporting countries and 44 importing countries is 302·9 million bushels. Sales under the Agreement, in millions of bushels, are: Australia 30·0, Argentina (new member) 14·7, Canada 102·9, France 16·5, Sweden (new member) 6·4, United States 132·1.

GOVERNMENT AID TO AGRICULTURE IN SOME WEST EUROPEAN COUNTRIES

G. J. Dobson

The agricultural industry of Western Europe was subjected to severe dislocations as a result of conditions arising out of World War II. Facilities had been damaged, productive resources neglected and the flow of trade to and from traditional markets had been disrupted or ceased altogether. In most countries of continental Europe the danger of inflation and actual food shortages after the war compelled governments to continue control of the production and distribution of agricultural products. In other countries, such as the United Kingdom and Sweden, production had been greatly expanded as a result of wartime incentive programs and these programs could not be immediately discontinued. Balance of payments difficulties arose and in this connection agriculture assumed a key role. Since the dollar area had become the main source of additional food supplies, importing countries sought to derive a higher proportion of their food needs from domestic sources. Exporting countries attempted to regain lost markets or develop new ones in order to provide much-needed foreign exchange.

In countries where production had declined, government aid plus assistance from Marshall Plan and other foreign aid programs, brought about a rapid rate of recovery. Countries where production was already at a high level desired to maintain this level to avoid further expenditures on imported foodstuffs. With the return of adequate supplies of food and agricultural raw materials, greater attention was given to improving efficiency and quality rather than increasing production at any cost. Measures were also directed to improving and safeguarding the economic position of farmers, particularly with the expiration of many of the wartime and postwar long-term food contracts and a return to freer market conditions.

The return to free markets brought other problems such as how payments in support of farm incomes might be made without greatly increasing consumer prices or pricing the commodity out of the export markets. In some instances systems of deficiency payments or pooling have been instituted but in others it has become necessary to subsidize exports of agricultural products which could not be sold on domestic markets at support prices.

Government aid programs to agriculture in Western Europe are, of course, not of recent origin but are of an evolutionary nature. The current programs reflect the experience of the prewar years and the more recent wartime and postwar conditions. It is not possible, of course, in a short report to describe the various forms of assistance in detail. It is the intention of this article and others to follow to present a brief survey showing the main features and scope of the assistance that the various countries give to their agricultural producers, without necessarily covering all forms of aid in each country. The countries selected for this article are Denmark, France, Italy, and the United Kingdom and they are presented in alphabetical order. The information has been compiled from reports by the Canadian Trade Commissioner Service, United States Foreign Agricultural Service, the Food and Agriculture Organization and publications issued by the countries concerned.

Denmark.—The policy of the Danish Government is to limit to a minimum its intervention in the agricultural sector of the economy. Because Danish agriculture is so dependent on export markets, the Government has refrained from commitments to producers in the form of price supports. Sugar beets are the only product for which a price is fixed by the Government. Some government control is also exercised over potatoes grown for industrial use.

Government aid to agriculture has been primarily in the form of financial assistance in the creation of small-holdings through the purchase and partition of large estates and by reclamation of land. Other Government aid measures were adopted in 1955 but were of an emergency nature. They included the temporary prohibition on the importation of wheat during the period of heavy domestic marketings and a provision for loans on grain held in commercial storage by farmers.

The major role in carrying out Danish agricultural policy is left to farm organizations and co-operatives. These groups are responsible for both domestic and export marketing of farm products. In addition they provide extension and advisory services and long-term agricultural credit.

France.—The agricultural policy of the French government operates around four main objectives:—

(*a*) Expansion of production through improved production techniques. As part of a modernization plan it is hoped that from 1954 to 1957 production can be expanded 20 per cent over that of 1952 with particular emphasis being placed on livestock production.
(*b*) Organization of domestic and colonial markets for the orderly sales of agricultural products at reasonable prices.
(*c*) Development of permanent foreign outlets.
(*d*) Orientation of production so as to reduce surpluses.

To the extent that the production expansion program is successful it becomes necessary for the other three policies to be integrated if serious marketing problems are to be avoided. Government financial aid has been large and takes several forms.

1. Measures to improve production techniques and reduce costs of production. Much of this expenditure is of a capital nature—an investment program totalling 134 billion francs ($380 million) has been announced for the period 1955-57. Expenditures will be for research, education, processing, handling and storage facilities and for large irrigation and drainage improvements. Measures to reduce production costs include subsidies on machinery and equipment, remission of taxes on gasoline, fuel oil, fertilizers and livestock feeds. Indemnities are paid for the uprooting of vineyards. To reduce the costs of livestock production, denatured wheat is sold for feed at a reduced price with losses borne by the Grain Board.

2. Subsidies to cover costs of price support operations—

Most of the principal commodities enjoy a basic support price. Support prices for some products are high to encourage production whereas for others, supports are an aid in a surplus situation. Products having support prices include grains, sugar beets, oilseeds, milk, butter, meat, and wine. Supplementing price support operations, the government makes purchases for stockpiling or for diversion to other uses.

3. Assistance to agricultural exports—encouragement of exports is a major policy in the French agricultural program in order to remove surpluses, improve farm income and ease balance of payments difficulties. Export aid is given mainly in the form of direct subsidies per unit exported and as payments by the government to cover deficits resulting from export operations. In some cases aid is given for transportation costs. Commodities aided by export subsidies include wheat, dairy products, meat, wine, potatoes, sugar.

Not all of the subsidy costs are borne by the government. The aim appears to be that about half the costs would be borne by producers, collected through various types of fees and taxes. To date, however, the producer contribution has been considerably less. For example, the export subsidy for grain in 1955 cost about 45 billion francs ($130 million) of which the State provided 32 billion ($96 million).

The total allocation by the State to the agricultural sector in 1955 was about 240 billion francs ($685.7 million). The outlay to support prices and subsidize exports was expected to be over 75 billion francs ($214 million), including 32 billion ($96 million) to export wheat, four billion ($12 million) for meat and six billion ($18 million) for dairy products. The cost of remitting taxes on farm motor fuels, fertilizers and animal feeds, subsidies on farm machinery and diversion of wine into alcohol total about 70 billion francs ($210 million). In addition, the public works investment in agriculture in 1955 was expected to total 69 billion francs ($197 million).

In 1955 legislation was enacted to consolidate a large part of the subsidizing operations under a Mutual Price Guarantee Fund. The new agency will act as a central executive and financial unit in place of the existing price boards for grains, sugar beet, wine, meat, dairy products, and oilseeds. The Fund can extend loans, guarantees or subsidies to assist: (1) the purchase, sale, stockpiling, export or import of agricultural products for the State or for groups designated by it; and (2) measures for planning production, either to encourage new crops or eliminate surpluses. The Fund has been allocated 20 billion francs ($60 million) for 1956 of which 7 billion francs ($21 million) is to be provided by producers.

Italy.—Italian agricultural policy is largely aimed at increasing agricultural productivity in order to better the standard of living in the rural areas, provide an improved diet for the population as a whole and narrow the gap between the prevailing excess of agricultural imports over exports. Special emphasis is being placed on intensifying production, developing agricultural mechanization and accelerating land reform.

State aid figures prominently in the programs for agricultural improvement and this assistance takes various forms. An expenditure of about $2 billion is provided through the Southern Development Fund (Cassa per il Mezzogiorno) set up in 1950 to finance a 12-year economic recovery program for the underdeveloped areas of Southern Italy. This Fund provides mostly for large scale drainage and improvement of land, irrigation, extensive agricultural engineering works and the building of farm houses. It also encourages smaller-scale private improvements by subsidies or credits and promotes the expansion of agricultural industries.

A ten-year program of land reform was adopted in 1951 and is now being implemented. Although special emphasis is laid on the efficient re-allocation of 1·7 million acres of landed property, activities also include land improvement and modernization by electrification, water supplies and construction of roads and buildings. The formation of co-operative organizations among the new small-holdings is also strongly encouraged and a technical assistance service is available to new farmers.

The total cost of all the work planned and in progress under the various programs will for the most part be borne by the State but the financial participation of private enterprise will also be substantial. Another ten-year economic development program (Vanoni Plan) calls for further large investment to increase agricultural productivity but this plan has not yet come into effect.

In addition to production assistance the government also aids in marketing farm products. Through the Federation of Agricultural Co-operatives, domestic wheat prices are supported by the Government at levels above those in world markets. There is compulsory delivery of part of the crop at fixed prices, support purchases are made in the free market, and the Government is the sole importer of wheat. Fixed or supported producer prices are also in effect for rice, hemp and sugar beets. There are pooling operations with some government support for butter, cheese, olive oil, silk cocoons, minor small grains, and dry legumes.

Government aid to agriculture, partly with the assistance of American aid, has also been given through other special programs. These include expanded advisory services, subsidies to reduce the price of selected seed, prizes to encourage increased yields, selective breeding of livestock under the supervision of the government, and fruit marketing studies. Domestic producers also receive protection against imports by a relatively high tariff level and by quantitative restrictions and exchange controls applied to imports from non-OEEC countries and the dollar area.

United Kingdom.—In 1947 the Agriculture Act was passed, which provided the main basis of postwar agricultural policy and the controls to implement it. The principles of the 1947 Act were that the Government would provide the industry with a system of guarantees which ensures "a stable and efficient agricultural industry capable of producing such part of the nation's food as in the national interest it is desired to produce." In return, the Act gave the Government power to insist on a minimum level of efficiency. If this level is not maintained the Minister of Agriculture, Fisheries and Food is able to issue directions to farmers and land owners and in the last resort to require a change of occupation or ownership.

The Act provides for the holding of an Annual Review of the economic condition and prospects of the agricultural industry. This is conducted by the Ministry of Agricuture with the farmers' representatives. In the light of the review, price guarantees are determined for livestock and livestock products for the next year and for crops to be harvested in the year following that in which the review is held. The products concerned are: wheat, barley, oats, rye, potatoes, sugar beet, fat stock, milk, eggs, wool. Minimum prices for livestock and their products are also fixed for two to four years ahead. Provision is also made for special reviews to be held at any time if the government considers that there has been a sudden substantial change in costs or in other conditions. There are powers to relate guaranteed prices to the levels of output of particular products.

In general, the subsidies to agriculture may be divided into two main types:

1. Those resulting from price guarantee operations under the Agriculture Act of 1947. These guarantees are given in four different ways:
    (a) Fixed guaranteed prices—apply to milk, wool, potatoes and sugar beets.
    (b) Mnimum or support prices—government pays the difference if selling price falls below minimum level. Applies to eggs and, beginning with the 1955 crop, potatoes.
    (c) Deficiency payments—government establishes a standard price and pays each producer the deficiency between this price and the average realized market price multiplied by the volume of his sales. This applies to wheat, rye, barley, and oats. For barley and oats, the payment is made on a per acre basis. This also applies to fatstock. The guarantee is collective rather than on the price the individual producer gets.
    (d) Guaranteed individual prices—guarantees a minimum price additional to the collective guarantee for each individual transaction. Applies to fatstock, except cows. This has been eliminated in the 1956 price review.
2. Direct agricultural production subsidies:
    (a) General fertilizers subsidy.
    (b) Lime subsidy.
    (c) Grants for plowing up grassland.
    (d) Grants towards the cost of field drainage, ditching schemes, and farm water supplies.
    (e) Grants for improvement of livestock rearing land in hill and upland districts.
    (f) Grants to increase food or fodder production on marginal land.
    (g) Bonus payments under the tuberculosis attested herds scheme.
    (h) Grants for improvement of livestock breeding.
    (i) Subsidy for calves suitable for beef production.
    (j) Special assistance for raising cattle and sheep in the more difficult hill areas.

In allocating the costs of the subsidies to the various segments of the agricultural industry it is difficult to make a clear-cut distinction between producer and consumer subsidies. Total food and agriculture subsidies have amounted to about £310 million ($868 million) per year in the last two years. Included in this is about £40 million ($112 million) for bread subsidy and about £30 million ($84 million) for milk in welfare and school milk schemes. Deducting this £70 million ($196 million) of essentially consumer subsidies leaves about £240 million ($672 million) as payments to agriculture. Of this amount, about £50 million ($140 million) is paid out for a wide range of production grants. Some of these are of a capital nature, and others, such as the fertilizer subsidies, help to cover current costs of production. The balance of about £190 million ($532 million) is paid to make up the difference between prices realized in the market and the prices guaranteed at the Annual Review. This latter amount must necessarily be flexible since it is determined to a large extent by fluctuations in the market prices.

Estimated expenditures for some of the main subsidies are as follows:—

A. Cost of subsidies under price guarantee operations:

Commodity	Estimated Subsidy			
	1954–55		1955–56	
	£ million	$ million	£ million	$ million
Fatstock: cattle	10·3	28·4	0·4	1·1
sheep	12·4	34·2	5·1	14·3
pigs	56·9	157·0	47·5	133·0
Eggs	26·1	72·0	18·6	52·1
Cereals	39·2	108·2	36·6	102·5
Milk	37·8	104·3	37·1	103·9
Potatoes	10·8	29·8	—	—

B. Estimated cost of production grants:

—	1954–55		1955–56	
	£ million	$ million	£ million	$ million
Fertilizers subsidy	13·5	37·3	14·5	40·6
Lime subsidy	6·0	16·6	10·0	28·0
Plowing grants	5·0	13·8	5·2	14·6
Drainage and water supply	2·4	6·6	2·7	7·6
Improvement of livestock rearing land	1·0	2·8	1·4	3·9
Marginal production assistance	·9	2·5	1·7	4·8
T.B. attested herds scheme	10·2	28·2	10·6	29·7
Livestock breeding grants	·14	·4	0·1	·3
Calf subsidy	5·8	16·0	8·0	22·4
Hill sheep and hill cattle	1·2	3·3	3·9	10·9

C. Additional subsidies—(Consumer):

—	1954–55		1955–56	
	£ million	$ million	£ million	$ million
Bread	45·1	124·5	40·5	113·4
Milk in schools	·94	2·6	1·0	2·8
National milk scheme	28·7	79·2	31·1	87·1

At the annual Farm Price Review completed in March 1956, the Government agreed to the expenditure of an additional £25 million ($70·1 million) under price guarantee operations. The increase will apply to livestock products from April 1, 1956 to March 31, 1957 and to crops from the 1957 harvest. Production grants were also raised in the form of an additional £3 million ($8·41 million) for fertilizer subsidies, another £1 million ($2·8 million) for marginal production assistance, higher rates for the calf subsidy and assistance for building silos.

PUBLIC COLD STORAGE FACILITIES IN CANADA

J. M. Fitzpatrick

Cold storage is an important function of our marketing system. Millions of dollars are invested in buildings designed for the holding of perishable products. Today, there are 114 million cubic feet of refrigerated space in public, private and locker plant warehouses in Canada. This equals about one-seventh of the refrigerated storage space in the United States. Seventy-three million cubic feet of space are available for use by the public and the remaining 41 million cubic feet are owned by and operated for private enterprise. This article deals with public cold storage facilities.

Distribution and Growth of Public Cold Storage Facilities in Canada.—Of the 73 million cubic feet of refrigerated space now in public warehouses, 25 million cubic feet are used for commodities which should be maintained at freezing temperatures of 10°F. or lower. These include butter, frozen eggs, frozen fruits and vegetables, meats and poultry. The remaining 48 million cubic feet of space are used for goods held at cooler temperatures of 30°F. to 45°F. such as apples, cheese, fresh meats and eggs, lard and margarine (Table 1). About one-half of the present public freezer space is in Ontario and Quebec; but, one-half of all public cooler space is in British Columbia. Sixty-two per cent of public freezer space and 81 per cent of public cooler space is in warehouses subsidized by the Federal government under the Cold Storage Act of 1907.

Table 1.—Public Cold Storage in Canada, 1955

Province	Number of firms	Refrigerated space				
		Subsidized warehouses			Warehouses not subsidized	
		Freezer	Cooler	Subsidy paid	Freezer	Cooler
		thousand	cubic feet	thousand dollars	thousand	cubic feet
Prince Edward Island	9	73	14	43	73	10
Nova Scotia	19	844	3,289	1,068	13	16
New Brunswick	8	909	637	306	15	8
Quebec	56	1,185	4,086	1,131	4,098	2,906
Ontario	91	3,236	7,123	1,733	4,186	5,349
Manitoba	10	3,796	1,393	724	2	188
Saskatchewan	10	564	375	179	114	11
Alberta	10	962	437	173	96	4
British Columbia	74	3,942	21,412	2,891	784	829
Canada	**287**	**15,511**	**38,766**	**8,248**	**9,381**	**9,321**

Since 1907, about $8·2 million have been paid as subsidies for cold storage construction. An additional sum of about $1·3 million will be paid for refrigerated space now under construction.

Before 1951, 19·4 million cubic feet of public freezer space and 40·8 million cubic feet of public cooler space had been built in Canada (Table 2). Public facilities during this period developed most rapidly in British Columbia, Ontario, Quebec and Nova Scotia. During the last five years, 5·5 million cubic feet of freezer space and 7·3 million cubic feet of public cooler space have been built. The expansion of freezer and cooler space during this period has been greatest in Ontario and Quebec.

The Development of Subsidized Public Cold Storage in Canada.—The benefits of food preservation to food producers and consumers alike through the use of refrigeration were realized and encouraged by Federal authorities. In 1907,

Table 2.—Construction of Public Cold Storage in Canada during 1907–50 and 1951–55

Province	1907–50 Number of firms	1907–50 Refrigerated space Freezer	1907–50 Refrigerated space Cooler	1951–55 Number of firms	1951–55 Refrigerated space Freezer	1951–55 Refrigerated space Cooler
		thousand cubic feet			thousand cubic feet	
Prince Edward Island	6	120	22	3	26	2
Nova Scotia	16	847	3,302	3	10	3
New Brunswick	7	813	642	1	111	3
Quebec	35	3,955	3,196	21	1,328	3,796
Ontario	74	4,550	9,977	17	2,872	2,495
Manitoba	9	3,798	1,419	1	—	162
Saskatchewan	6	234	270	4	444	116
Alberta	6	453	260	4	605	181
British Columbia	67	4,614	21,708	7	112	533
Canada	**226**	**19,384**	**40,796**	**61**	**5,508**	**7,291**

the Cold Storage Act was passed. Its purpose was to encourage the establishment of cold storage warehouses open for public use. This Act has remained in force for 48 years, and has been amended only once in 1952. Amendments were then made to increase subsidy payments from 30 to 33⅓ per cent of approved construction costs and to allow for payment in one sum instead of in five instalments during the four years following completion of the warehouse. This Act is of direct benefit to agriculture. Most of the goods stored in subsidized warehouses are agricultural commodities.

Cold storage firms in all provinces have taken advantage of the provisions of the Cold Storage Act. Forty-four per cent of all subsidized refrigerated space in Canada was constructed in British Columbia, 23 per cent in Ontario, 11 per cent in Quebec, nine per cent in Nova Scotia and 13 per cent in the remaining provinces (Table 3).

Over half the subsidized cold storage constructed in each period between 1930 and 1950 was built in British Columbia. Prior to 1930, Nova Scotia built a considerable amount of cold storage space but Quebec did not expand subsidized facilities to any degree until after 1950, mainly because a large amount of cold storage space in Montreal and Quebec City is federally owned and operated by the National Harbours Board. Most subsidized cold storage space in the Prairie provinces was built after 1940.

Table 3.—Distribution of Subsidized Cold Storage in Canada, by Selected Periods, 1907–1955[a]

Construction periods	Provinces P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Canada
	—per cent of subsidized space—									
Until 1920	3	9	15	5	34	1	9	7	17	100
1921—1930	[b]	61	—	3	3	—	—	—	33	100
1931—1940	1	4	1	[b]	29	—	—	—	65	100
1941—1945	—	—	3	1	7	22	—	1	66	100
1946—1950	—	14	2	3	15	7	[b]	1	58	100
1951—1955	[b]	1	[b]	44	33	2	5	8	7	100
48 years	[b]	9	3	11	23	5	2	3	44	100

[a] Basis—cubical content of subsidized freezer plus cooler space.

[b] Less than 0·5 per cent.

Table 4.—Average Building Costs per Cubic Foot of Subsidized Refrigerated Space

Type of refrigerated space	Number of warehouses	Refrigerated space	Cost per cubic foot
		thousand cubic feet	dollars
Cooler construction—			
1907–35	23	3,772	·22
1936–45	49	8,642	·21
1946–55	64	16,964	·46
Freezer construction—			
1907–35	11	1,576	·45
1936–45	6	298	·82
1946–55	11	1,819	1·10

Cold storage construction costs are much higher now than at any other time. For comparative purposes, subsidized warehousing space having only cooler construction was tabulated for various time periods and analysed. A similar procedure was followed for freezer type construction. As shown in Table 4, cooler construction costs are considerably lower than freezer costs even though building costs for cooler storage have increased on the average from 22 cents per cubic foot before 1935 to 46 cents during the period 1946 to 1955. Between the same periods, average freezer type construction costs increased from 45 cents to $1.10 per cubic foot.

Over the last 48 years, 71 per cent of all public cold storage space eligible for subsidy was built to store cooler products only (Table 5). Until 1930, most of the cold storages were designed to store non-seasonal staples such as butter, meat, poultry, fish and eggs, resulting in a greater proportion of freezer space being built than of cooler. Since 1930, the marketing of fruits and vegetables developed rapidly. More cooler space was required. Existing legislation proved flexible enough to allow for subsidization of this expansion. As a result, 93 per cent of all subsidized space built between 1930 and 1940 was for cooler products.

In general, by 1951, 81 per cent of all subsidized space was for cooler commodities. During the last five years, the cold storage pattern has again shifted as strong demands for additional freezer space has had the effect of lowering the proportion of cooler space built during this period to 61 per cent of all subsidized space.

Table 5.—Proportion of Subsidized Cold Storage Space Built in Canada, by Selected Periods, 1907-55

Construction periods	Refrigerated space—Canada		
	Cooler	Freezer	Total
		—per cent—	
Until 1920	46	54	100
1921–1930	49	51	100
1931–1940	93	7	100
1941–1945	77	23	100
1946–1950	90	10	100
43 years	81	19	100
1951–1955	61	39	100
48 years	71	29	100

Table 6.—Relation Between Public Cold Storage Space and Centres of Population, 1955

Population per city or town	Number of firms	Refrigerated space			
		Freezer		Cooler	
		thousand cubic ft.	per cent	thousand cubic ft.	per cent
Under 5,000	135	1,736	7	23,182	48
5,000–20,000	68	2,555	10	11,860	25
Over 20,000	84	20,601	83	13,045	27
Canada	**287**	**24,892**	**100**	**48,087**	**100**

Relationship of Public Cold Storage Space to Centres of Population.—Public freezer space is most prevalent in the large cities of Canada. Most public cooler space, however, has been constructed in the small centres. It will be seen that 83 per cent of the 24·9 million cubic feet of public freezer space was built in cities with a population of 20 thousand or over; ten per cent in centres with from five to 20 thousand people; and, seven per cent in centres having less than five thousand people (Table 6). Public cooler space, on the other hand, was found to be greatest (48 per cent) in centres with less than five thousand people. Centres with a population of 20 thousand or more and those with from five to 20 thousand people had 27 and 25 per cent of the cooler space, respectively.

Of the 287 public cold storage warehouses, about half are in small towns and have an average of 12 thousand cubic feet of freezer space and 172 thousand cubic feet of cooler space. Centres with from five to 20 thousand people had an increasing amount of freezer space per warehouse and a decreasing amount of cooler space. Cold storage warehouses in cities with over 20,000 people were larger than in other centres having an average of 228 thousand cubic feet of freezer space and 149 thousand cubic feet of cooler space.

In the nine cities of Canada, there are 48 public cold storage warehouses (Table 7). These warehouses have just over two-thirds of the total public freezer space and just under one-quarter of the total public cooler space in Canada. Almost one-quarter of the subsidy paid under the Cold Storage Act was for cold storage space in these cities. Toronto, Montreal, Winnipeg, and Vancouver have 60 per cent of all public freezer space in Canada but only 18 per cent of the total cooler space.

Table 7.—Public Cold Storage Space in Nine Cities, Canada, 1955

Location	Number of firms	Refrigerated space	
		Freezer	Cooler
		—thousand cubic feet—	
Quebec	4	515	275
Montreal	13	4,170	2,753
Toronto	9	4,454	3,780
Winnipeg	5	3,748	1,359
Regina	3	391	132
Saskatoon	2	242	94
Calgary	3	378	120
Edmonton	3	424	196
Vancouver	6	2,653	847
Total	**48**	**16,975**	**9,556**

Summary.—Within Canadian refrigerated warehouses are 114 million cubic feet of cold storage space. Seventy-three million cubic feet of this space are available for public use; 25 million cubic feet used for commodities requiring freezing, and the remainder (48 million cubic feet) for goods held at cooler temperatures. One-half of public freezer space was built in Ontario and Quebec; but, one-half of all public cooler space was built in British Columbia. Sixty-two per cent of public freezer space and 81 per cent of public cooler space are in warehouses subsidized by the Federal government under the Cold Storage Act of 1907. Forty-four per cent of all subsidized refrigerated space in Canada was constructed in British Columbia, 23 per cent in Ontario, 11 per cent in Quebec, nine per cent in Nova Scotia and 13 per cent in the remaining provinces. Seventy-one per cent of all public cold storage space eligible for subsidy was built to store cooler products only. Most of the public freezer space in Canada has been built in large cities but the largest portion of public cooler space is in centres with less than 5,000 people.

FINANCIAL STRUCTURE OF LOCAL CANADIAN MARKETING-PURCHASING CO-OPERATIVES[1]

H. K. INGERSOLL

Many local co-operatives in Canada both market the farm produce of the members and purchase supplies and equipment for their use. Some of these dual-purpose associations were originally formed as either marketing or purchasing co-operatives and assumed the additional function after being in operation for a number of years.

The nature and extent of the activities of a business whether organized according to co-operative principles or otherwise, determine the amount and type of capital required; hence, the capital structure of dual-purpose associations differs from that of co-operatives engaged solely in marketing or in purchasing.

The financial structure of local Canadian dual-purpose co-operatives engaged in both marketing and purchasing is the subject of this part of a study of the financing of local Canadian co-operatives undertaken in the Economics Division.

For purposes of the study a random sample of 173 marketing-purchasing co-operatives was taken from among those which submitted returns to the Economics Division from 1947 to 1951. The sample does not include any Newfoundland co-operatives as that province was not part of Canada during the full period covered by the study. Co-operatives with total assets of over $500,000 are also excluded as their weight would influence the averages to such an extent as to result in misrepresentation.

ASSETS

Total Assets.—About seven per cent of the co-operatives in the sample had assets of less than $10,000 at the close of 1951. The assets of 22 per cent were between $10,000 and $25,000, and 21 per cent of the co-operatives had between $25,000 and $50,000 in total assets. About 15 per cent of the co-operatives were in the $50,000 to $75,000 class and 11 per cent had over $75,000 but not over $100,000 in total assets. Although 24 per cent of the co-operatives had assets in excess of $100,000, the assets of only four of the co-operatives in the sample exceeded $300,000.

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[1] This is the third of a series of articles on the financial structure of Canadian Co-operatives. The other two appeared in the August 1955 and December 1955 issues of *The Economic Annalist*.

Total assets per co-operative averaged $51,468 at the end of 1947 (Table 1). Expansion is indicated by the steady increase in total assets which by the close of 1951 averaged $75,000, representing an increase of 46 per cent since 1947.

Table 1.—Canadian Marketing—Purchasing Co-operatives—Average Distribution of Assets and Liabilities, 1947-1951

——	1947	1948	1949	1950	1951	Average 1947–1951
			—per cent—			
ASSETS						
Cash on hand and in bank and credit union	9·9	7·5	5·9	5·7	5·8	6·7
Receivables less bad debts	17·3	16·4	17·1	17·7	18·6	17·5
Merchandise on hand	27·7	29·7	27·2	26·1	28·6	27·8
Other current assets	1·0	1·2	·7	1·8	·7	1·1
Total current assets	**55·9**	**54·8**	**50·9**	**51·3**	**53·7**	**53·1**
Plant less depreciation	38·8	40·0	42·7	41·9	39·6	40·7
Investments in other co-operatives	3·2	3·3	4·5	4·5	4·6	4·1
Other assets	2·1	1·9	1·9	2·3	2·1	2·1
Total assets	**100·0**	**100·0**	**100·0**	**100·0**	**100·0**	**100·0**
(Average value of assets)	($51,468)	($56,603)	($64,844)	($69,643)	($75,000)	($63,812)
LIABILITIES TO THE PUBLIC						
Bank and credit union loans	8·9	10·3	9·9	9·3	9·1	9·5
Accounts payable	17·8	15·5	13·5	13·7	14·8	14·8
Accrued expenses	·8	1·0	·9	·8	·7	·8
Other current liabilities	3·8	2·9	2·7	2·0	1·9	2·6
Total current liabilities	**31·3**	**29·7**	**27·0**	**25·8**	**26·5**	**27·7**
Mortgages and deferred liabilities	11·7	13·0	15·1	15·8	14·9	14·3
Total liabilities to the public	**43·0**	**42·7**	**42·1**	**41·6**	**41·4**	**42·0**
MEMBERS' EQUITY						
Loans from members	10·3	11·8	13·1	14·7	14·5	13·2
Savings allocated to members	9·4	9·8	10·4	10·2	10·6	10·1
Liabilities to members	**19·7**	**21·6**	**23·5**	**24·9**	**25·1**	**23·3**
Share capital and membership fees	15·8	15·9	16·1	15·6	15·4	15·8
Reserve not allocated to members	8·8	8·7	9·2	9·2	10·5	9·4
Undivided surplus	12·7	11·1	9·1	8·7	7·6	9·5
Net worth	**37·3**	**35·7**	**34·4**	**33·5**	**33·5**	**34·7**
Members' equity	**57·0**	**57·3**	**57·9**	**58·4**	**58·6**	**58·0**
Total liabilities and members' equity	**100·0**	**100·0**	**100·0**	**100·0**	**100·0**	**100·0**
(Average value of liabilities and members' equity)	($51,468)	($56,603)	($64,844)	($69,643)	($75,000)	($63,812)

Current Assets.—Current assets averaged 53 per cent of the total assets for the 1947 to 1951 period.

The working capital ratio, that is, the ratio of current assets to current liabilities, varied little from the 2 to 1 average for the five-year period.

Table 2.—Canadian Marketing—Purchasing Co-operatives—Average Distribution of Assets and Liabilities, According to Principal Commodity Marketed, 1947-51

—	Dairy products	Eggs and poultry	Fruits and vegetables	Grains and seeds	Purchasing predominant	All groups
	—per cent—					
ASSETS						
Cash on hand and in bank and credit union	7·4	4·6	7·3	6·8	6·5	6·7
Receivables less bad debts	15·2	14·7	28·4	18·7	15·7	17·5
Merchandise on hand	19·4	25·0	16·9	30·6	33·4	27·8
Other current assets	1·3	·5	2·1	·4	·8	1·1
Total current assets	**43·3**	**44·8**	**54·7**	**56·5**	**56·4**	**53·1**
Plant less depreciation	51·1	45·4	40·2	35·4	37·3	40·7
Investments in other co-operatives	3·3	6·3	3·4	3·9	4·4	4·1
Other assets	2·3	3·5	1·7	4·2	1·9	2·1
Total assets	**100·0**	**100·0**	**100·0**	**100·0**	**100·0**	**100·0**
(Average value of assets)	($46,251)	($66,085)	($73,367)	($90,005)	($69,930)	($63,812)
LIABILITIES TO THE PUBLIC						
Bank and credit union loans	10·2	16·4	6·7	14·0	8·4	9·5
Accounts payable	10·2	9·2	24·3	10·5	14·6	14·8
Accrued expenses	·9	·5	·8	·7	·8	·8
Other current liabilities	·5	·7	1·8	2·8	3·6	2·6
Total current liabilities	**21·8**	**26·8**	**33·6**	**28·0**	**27·4**	**27·7**
Mortgages and deferred liabilities	14·8	12·2	15·0	—	15·9	14·3
Total liabilities to the public	**36·6**	**39·0**	**48·6**	**28·0**	**43·3**	**42·0**
MEMBERS' EQUITY						
Loans from members	5·0	28·2	13·7	27·9	12·4	13·2
Savings allocated to members	15·4	10·4	7·6	14·0	9·2	10·1
Liabilities to members	**20·4**	**38·6**	**21·3**	**41·9**	**21·6**	**23·3**
Share capital and membership fees	24·5	6·1	13·1	6·3	15·7	15·8
Reserve not allocated to members	8·2	7·2	11·4	4·7	10·0	9·4
Undivided surplus	10·3	9·1	5·6	19·1	9·4	9·5
Net worth	**43·0**	**22·4**	**30·1**	**30·1**	**35·1**	**34·7**
Members' equity	**63·4**	**61·0**	**51·4**	**72·0**	**56·7**	**58·0**
Total liabilities and members' equity	**100·0**	**100·0**	**100·0**	**100·0**	**100·0**	**100·0**
(Average value of liabilities and members' equity)	($46,251)	($66,085)	($73,367)	($90,005)	($69,930)	($63,812)

Although this ratio might be considered satisfactory for some types of business under certain conditions, the working capital position of the co-operatives does not appear to have been very satisfactory. That the co-operatives actually had very little cash available is indicated by the shortage of the most liquid assets, cash and receivables, which did not exceed the current liabilities at any time during the five years.

Inventories, the largest item in the current assets, accounted for over one-half of the total value of the current assets. Inventories of those co-operatives which engaged chiefly in purchasing tended to be larger than inventories of co-operatives in which marketing was the major function.

Accounts receivable averaged almost one-third of the total current assets. In each year except 1947, the accounts receivable exceeded the accounts payable.

Among the various types of co-operatives those which were engaged principally in marketing grains and seed has the largest total assets, $90,000 per co-operative. The average total assets of the dairy products group were the smallest with $46,000 per co-operative (Table 2).

Fixed assets.—Additions and replacements of plant and equipment were heaviest during the earlier years of the basic period. The net value of fixed assets, that is, plant and equipment, increased 50 per cent during the four years and averaged $30,000 at the close of 1951. The ratio to total assets varied between 38·8 per cent in 1947 to the high of 42·7 per cent in 1949.

Although the net value of fixed assets increased in all groups, the ratio to total assets increased only in the fruit and vegetable group. A few of the larger fruit and vegetable associations made extensive additions to plant and equipment during the four years which almost doubled the 1947 average of $19,220 for the group and increased the group ratio of fixed to total assets from 30 to 45 per cent.

The increases in net value of fixed assets of the dairy products and the grain and seed groups were the smallest at less than $6,000 each. The increase resulted in very little change in the ratio of fixed to total assets for the dairying group. On the other hand, in the grain and seed group the increase in fixed assets was less than in other types of assets and the ratio of fixed to total assets dropped from 40 per cent to 30 per cent by the end of 1951.

Investments.—Over 80 per cent of the co-operatives in the sample had invested in their wholesale or central co-operative. The co-operatives which did not have such investments were comparatively small, and were engaged principally in marketing without much dependence on the centrals.

No evidence was found of financial assistance to member-producers other than that which might have been given by normal extension of credit.

Liabilities to the Public

Current Liabilities.—Over three-quarters of the co-operatives had short-term loans from banks or credit unions to finance the current operations. The amount of the loans increased each year but their ratio to total assets remained between 8·9 and 10·3 per cent.

Short-term loans from the banks outnumbered loans from credit unions by over three to one. Interest rates charged by the banks are generally lower than those charged by credit unions but the same collateral is not asked for by credit unions, particularly when the members of the co-operative are largely the same as those of the credit union. The result is that the credit unions fill current loan requirements beyond the amount available from the banks. In practically all cases where co-operatives had borrowed from Credit Unions they also had unpaid bank loans.

Accounts Payable.—The deferment of payment for goods and services provides a certain amount of funds for a short time but it cannot be approved as a source of capital. The practice of habitually deferring payment beyond the normal period of grace reacts unfavorably on the debtor not only in interest charges and the loss of discounts, but also in the impairment of credit rating and in the services which might be expected from suppliers.

Accounts payable together with accrued expenses and other current liabilities amounted to 22·4 per cent of the total assets at the close of 1947. The downward trend in this ratio in the following years was accompanied by an almost equal downward trend in the ratio of cash on hand and on deposit.

Mortgages and Deferred Liabilities.—Mortgages and deferred liabilities represent long-term capital from the public. More long-term public capital was obtained through mortgages than by any other method. Long-term loans were obtained from banks, credit unions and insurance companies, and from the Industrial Development Bank. Two of the smaller co-operatives obtained long-term loans from individuals. Bonds or debentures were issued in some cases by large associations to provide funds for major additions to plant. Substantial grants were received by some co-operatives to help provide warehouse and cold-storage facilities.[1]

At the end of 1947 mortgages and deferred liabilities owing to the public averaged $6,030 per co-operative and amounted to 11·7 per cent of the total assets. Mortgages and deferred liabilities increased each year following 1947 and at the close of 1951 amounted to $11,156, or 14·9 per cent of the total liabilities and members' equity.

Though it is not uncommon for the large central or wholesale co-operatives to guarantee payment of principal or interest on loans obtained by their local member-associations from outside sources, no example of such guarantee was found in the sample.

MEMBER CAPITAL

The members are the first or primary source of capital of a co-operative. As the members and patrons benefit most from the operations of a co-operative, they should be prepared to furnish sufficient capital to provide a place of business, and at least some of the working capital. With a good foundation of member capital the interest and patronage of the members may be expected to continue. Co-operatives which enjoy the strong financial support of the members are not likely to have serious difficulties in obtaining public capital as required from time to time.

The capital contributed by the members is shown in the tables as "Members' Equity" and consists of the liabilities to members and the net worth.

Liabilities to Members.—Liabilities to members are composed of loans from members and savings allocated to members. The greater part of the member loans represent retained dividends. Comparatively little new capital appears to have been received as loans from members. Most of the loans were interest bearing and were supported by promissory notes. A few of the loans were payable on demand.

The use of member loans for intermediate and long term financing increased during the years covered by the study. The average of $5,300 for loans in 1947 represented 10·3 per cent of the total assets. About half of the co-operatives in the sample had loans from members. The large co-operatives used this method of financing to a much greater extent than the small co-operatives.

Allocated savings contain dividends payable and retained savings covered by certificates of indebtedness. Also included are retained savings such as "Savings Bonds" issued by the co-operatives and other forms of promissory notes containing a definite rate of interest and maturity date.

Allocated savings averaged ten per cent of the total assets over the five years. Although the amount per co-operative increased from $4,800 in 1947 to $7,900 by the end of 1951, the ratio increased only from 9·4 per cent of the total assets to 10·6 per cent.

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[1] Where such grants were shown as a liability in the balance sheet, they have been included under mortgages and deferred liabliities.

Net Worth.—The net worth which includes share capital, reserves not allocated to members and undivided surplus is an estimate of the shareholders' equity in the co-operative, as shareholders. Other member claims classed as liabilities to members would be paid out in the event of liquidation, before anything was paid on shares.

The net worth for the total sample of marketing-purchasing co-operatives averaged 34·7 per cent of the total assets. The ratio decreased from 37·3 per cent in 1947 to about 33 per cent in 1950 and 1951.

The dairy products group had the highest average ratio of net worth for the five years, at 43 per cent. The lowest ratio of 22·4 per cent was shown by the egg and poultry group. This comparatively low net worth ratio for the egg and poultry group is due to the preponderance of loan over share capital in the group.

With few exceptions the marketing-purchasing co-operatives were organized on a share capital basis. The capital obtained from the sale of shares was close to 16 per cent of the total assets in every year of the 1947-51 period.

The ratio of shares to total assets varied considerably among the groups. The dairy products group had the largest ratio with 25 per cent in share capital whereas the egg and poultry group averaged only six per cent in shares. One of the larger associations in the grain and seed group changed from share to loan capital during the period. Most of the co-operatives in the sample for this group were organized without share capital.

The par value of most of the shares issued by the co-operatives was $10.00. The par value exceeded $25.00 in only one case.

There was very little evidence of revolving shares except in the few instances where large co-operatives applied savings to the purchase of shares which were to be redeemed after a pre-determined period, generally five years. This method of purchasing shares has the tendency to distribute share holdings in proportion to patronage. The practice of revolving shares continues the principal of keeping control in the hands of the active members by gradually eliminating those who have moved away or for other reasons have ceased to patronize their co-operative.

Very few issues of preferred stock were made. The issues which did occur in the sample were made by the larger co-operatives to finance extensive additions or improvements to fixed assets.

Apart from valuation reserves and those which are required by law, very few of the co-operatives in the sample had made any provision for losses or for any particular contingency. One of the larger co-operatives had set up a reserve out of which patronage dividends were paid. Reserves averaged around nine per cent of the total liabilities and members' equity and fluctuated little during the years.

Members' Equity.—Members' equity is a better measure than net worth, of the extent to which members are providing the capital required by their co-operative, as it includes all member capital. It increased at a similar rate to total assets of co-operatives during the five-year period. As a result, the ratio of members' equity to total capital changed little during the five-year period gradually increasing from 57·0 to 58·6 per cent. There was, however, a fairly marked variation in the members' equity ratio related to the nature of the co-operative business. Thus it ranged from 51 per cent of total assets for the fruit and vegetable group to 72 per cent for the grain and seed group.

There was during this period a considerable change in the proportions of liabilities to members and net worth of which members' equity is composed. In 1947, net worth amounted to almost two-thirds of the members' equity, but at the end of 1951, due to the large increase in member loans and the decrease in undivided surplus, net worth represented only 57 per cent of the members' equity.

From the viewpoint of the individual members, the conversion of their portion of surplus to loans rather than to shares, places them in a more satisfactory position, as loans are generally interest bearing and have a definite due date while shares seldom have either of these features.

It would be necessary to examine the terms under which shares were issued or loans made to estimate the effect on the individual co-operative, retaining savings by these methods. Probably a balance sheet showing a large proportion of share capital is more conducive to the granting of credit than one which shows the largest part of its member capital in the form of loans.

MARKETING MARGINS AND FARM SHARE OF THE CONSUMER'S FOOD DOLLAR 1949-1955[1]

R. C. GILSTORF and G. E. WOOLLAM

Consumers spent an estimated $4·0 billion on food in 1955 and probably three-fourths of this food in value terms, originated on Canadian farms. Food expenditures have been increasing since 1949 at an average annual rate of about four per cent and this enlarged domestic market is becoming increasingly important as the source of farmers' income.

Table 1. –The Canadian Farm Food Expenditure Bill—Estimates on the Total Retail Cost, Farm Value, Marketing Margin and Farmer's Share of Retail Costs, 1949-1955

——		1949	1950	1951	1952	1953	1954	1955
Retail cost	$ million	2,190	2,310	2,651	2,788	2,842	2,945	3,070
Farm value	$ million	1,106	1,153	1,344	1,330	1,333	1,358	1,415
Marketing margin	$ million	1,084	1,157	1,307	1,458	1,509	1,587	1,655
Farmer's share	per cent	50·5	49·9	50·7	47·7	46·9	46·1	46·1

Estimates have been made of the amount spent by Canadian consumers on foods originating on Canadian farms. The total cost of marketing and the farm share were calculated from these values. The farm value of food consumed domestically has been increasing despite lower prices at the farm which indicates the growing importance of the domestic market for farm products (Table 1).

Table 2.—Indexes of Retail Food Prices, Farm Prices, Marketing Margins and Farm Shares for 14 Selected Agricultural Commodities (1949 = 100)

Year	Index of retail food prices	Index of farm prices	Index of marketing margins	Index of farm share of consumer's dollar
1949	100·0	100·0	100·0	100·0
1950	101·5	101·0	103·2	98·9
1951	115·6	115·4	113·2	100·4
1952	118·2	108·6	127·1	94·6
1953	113·1	102·3	126·1	92·6
1954	110·3	97·2	126·2	90·9
1955	110·8	97·2	124·5	91·4

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[1] A bulletin, *"Marketing Margins for Selected Canadian Agricultural Products, 1935-49"*—was published by the Economics Division in 1950. Another article entitled, *"Market Margins for Food in Canada, 1949-1953"*, appeared in *The Economic Annalist*, August, 1954. The Tables included in the article appearing in this issue have incorporated revisions of this earlier material and some changes in methods of computation.

Table 3.—Average Annual Marketing Margins, 14 Selected Commodities, 1949 to 1955

Commodity	Unit	1949	1950	1951	1952	1953	1954	1955[a]
		—cents per unit—						
Wheat flour[b]	lb.	3·7	4·0	4·3	4·5	4·5	5·0	4·6
White bread[b]	lb.	7·7	8·1	9·4	9·9	10·0	10·7	10·7
Beef, blue brand	lb.	18·4	20·1	21·6	29·0	26·7	24·1	24·4
Pork[a]	lb.	21·2	21·5	24·1	24·1	26·9	30·2	27·4
Chicken[a]	lb.	25·7	23·5	27·8	26·2	29·5	30·0	23·1
Eggs, A Large	doz.	11·2	12·4	14·1	15·2	15·8	15·1	15·1
Fluid milk	qt.	7·9	8·2	9·1	9·8	9·8	9·9	9·9
Creamery butter	lb.	15·3	15·1	14·2	15·5	14·8	14·4	14·6
Cheese, plain process	½ lb. pkg.	19·0	19·7	21·0	24·8	24·1	23·4	24·0
Potatoes	10 lb.	18·2	18·1	17·8	26·4	22·3	20·5	23·9
Canned peaches	15 oz. tin	15·4	15·5	17·1	16·9	15·9	15·9	16·7
Canned tomatoes	28 oz. tin	16·1	14·1	19·0	23·8	19·2	16·8	20·8
Canned corn	20 oz. tin	16·2	14·8	15·8	16·7	15·2	14·8	15·8
Canned peas	20 oz. tin	14·6	14·2	15·2	16·6	16·9	16·8	16·3

[a] Preliminary.

[b] Based on domestic price of wheat, in store Fort William—Port Arthur less marketing charges from farm to Fort William—Port Arthur.

An index of prices of 14 selected commodities at retail and at the farm, as well as an index of marketing margins and the farm share of these foods is shown in Table 2. The data are not strictly comparable with those in Table 1, which is based on food expenditure data; Table 2 pertains to 14 commodities for which market margins are computed and which represent about 75 per cent of Canadian farm foods domestically consumed.

Table 4.—Farm Share of the Consumer's Dollar as a Percentage of the Retail Price, 14 Selected Commodities, 1949 to 1955

Commodity	1949	1950	1951	1952	1953	1954	1955[a]
	—per cent—						
Wheat flour[b]	49	46	42	39	41	35	38
White bread[b]	23	21	18	16	17	14	15
Beef, blue brand	64	67	71	62	57	58	59
Pork,[a]	62	61	61	55	56	53	50
Chicken[a]	56	58	58	56	54	55	58
Eggs, A Large	82	78	80	74	77	73	76
Fluid milk	56	55	54	54	54	53	53
Creamery butter	76	75	79	77	77	78	77
Cheese, plain process	35	32	35	27	27	28	27
Potatoes	48	45	49	61	43	45	51
Canned peaches	26	23	21	22	21	22	21
Canned tomatoes	20	21	18	17	21	22	21
Canned corn	15	15	14	15	18	17	17
Canned pea	17	18	19	19	20	20	21

[a] Preliminary.

[b] Based on domestic price of wheat, in store Fort William—Port Arthur less marketing charges from farm to Fort William—Port Arthur.

Tables 3 and 4 show the marketing margins and the farm shares individually, for 14 commodities. These costs and farm share data are generally a reliable measure of the changes from year to year or between periods but do not necessarily correspond precisely with the actual marketing cost or farm share in any one year.

PUBLICATIONS OF THE ECONOMICS DIVISION

Co-operation in Canada, 1954. Muller, P. G. Processed bul. October 1955. pp. 26.

This is the twenty-third annual summary of *Co-operation in Canada.* A brief review of *Some Recent Developments* supplies the background for a detailed description of co-operative activities. Part I deals with such matters as the *Extent of the Co-operative Movement in Canada; Volume of Business; Marketing of Farm Products; Purchasing and Merchandising; Financial Structure of Marketing and Purchasing Co-operatives; Service Co-operatives; Fishermen's Co-operatives and Insurance Co-operatives.* Part II gives a review of *Co-operative Wholesaling in Canada,* its financial structure, volume of business and operations in 1954, and a description of the functions and activities of the *Interprovincial Co-operatives Ltd.*

OTHER PUBLICATIONS

The Terms of Trade. Kindleberger, Charles P. The Technology Press of Massachusetts Institute of Technology and John Wiley & Sons, Inc., New York. 1956. pp. xx + 382.

The sub-title of this book is, *A European Case Study.* The author refers to the book as an empirical study. The task set was to test existing theories concerning short and long-run influences in the terms of trade against an amassed body of European statistical evidence. The policy-maker and the student will find this a useful book.

Introduction to International Trade and Finance. Tarshis Lorie. John Wiley & Sons, Inc., New York. 1955. pp. vii + 536.

This volume is an addition to the ever-growing book shelf of text-books outlining the fundamental principles and giving up-to-date descriptions of modern world trade problems and institutions. The author examines the relations betwen international trade and economic well-being, trade in goods and services and capital movements. The book also reviews the efforts to correct disequilibrium by individual countries and by groups of countries co-operatively. It is a well-written book and an excellent reference to have handy.

1954 Production Cost Studies on Alberta Mixed Farms, Cost-Income-Efficiency. Petersen, T. A. and B. J. McBain. Farm Cost Studies, Dairy Branch, Alberta Department of Agriculture, University Press Building, Edmonton, Alberta. 1956. pp. 46.

The authors have organized their analysis of cost data into five main sections: *Farm Incomes and Organization; Comparisons by Soil Type; Farm Management Practices Affecting Incomes; Enterprise Production Costs;* and *Case Studies of Individual Farms.*

Marketing Niagara Peninsula Cherries. Haslett, E. A. and J. McInally. Farm Economics Branch in co-operation with Fruit Branch, Ontario Department of Agriculture. Toronto, 1956. pp. 34.

Report on a study designed to determine:

(1) the weekly pattern of Niagara peninsula cherry movement to the fresh market and to processors;
(2) the distribution by destination of fresh cherries moving from Niagara peninsula during the calendar year 1954;
(3) the volume of Niagara fresh cherries transported by rail and by truck; and
(4) the competitive position of the Niagara peninsula in the marketing of cherries.

The Profitability of Fattening Cattle 1953-54. Richardson, Prudence P. Department of Agricultural Economics, University of Nottingham, School of Agriculture, Sutton Bonington, near Loughborough. Nov. 1955. p. 28.

THE ECONOMIC ANNALIST

A BIMONTHLY REVIEW OF AGRICULTURAL BUSINESS

MARKETING SERVICE, ECONOMICS DIVISION
J. F. BOOTH, Chief

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Minister of Agriculture

ANNUAL AND MONTHLY INDEX NUMBERS

Wholesale Prices, Farm Prices and Living Cost Indexes

Year and Month	General Wholesale Price	Wholesale Prices of Canadian Farm Products[a]			Farm Prices of Agricultural Products[b]	Prices of Commodities and Services used by Farmers		Consumer Price		Industrial Production
		Total[b]	Field[b]	Animal		Composite[c]	Equipment and Materials[d]	Total	Food	
	1935–39=100							1949=100		1935–39=100
1913	83·4	....	....	....	....	....	85·4	49·2	44·4	....
1914	85·4	....	....	....	....	85·3	90·2	49·6	46·0	....
1915	91·8	....	....	....	....	91·6	96·9	50·3	46·8	....
1916	109·8	....	....	....	....	100·5	101·7	54·2	51·8	....
1917	148·9	....	....	....	....	140·5	140·7	63·7	66·9	....
1918	166·0	....	....	....	....	160·2	164·1	72·0	76·9	....
1919	174·7	....	....	....	....	167·9	169·1	78·8	82·2	....
1920	203·2	....	....	....	....	186·5	190·1	90·5	94·4	....
1921	143·4	....	....	....	....	152·5	147·4	80·9	72·5	....
1922	126·8	....	....	....	....	134·1	124·6	74·9	61·5	....
1923	127·7	....	....	....	....	130·6	118·3	75·2	61·9	....
1924	129·5	....	....	....	....	131·9	122·3	74·0	60·7	....
1925	133·8	....	....	....	....	131·8	123·2	74·6	63·4	....
1926	130·3	144·4	158·5	130·2	....	130·6	119·9	75·9	66·6	....
1927	127·3	138·6	149·4	127·8	....	131·2	119·9	74·6	65·3	....
1928	125·6	136·3	134·3	138·2	....	129·3	118·3	75·0	65·6	....
1929	124·6	140·8	137·2	144·4	....	127·9	117·6	75·8	67·1	....
1930	112·9	119·5	105·8	133·3	....	117·0	105·6	75·3	65·6	....
1931	94·0	78·9	65·0	92·7	....	100·9	92·2	67·9	51·4	....
1932	86·9	65·5	60·4	70·5	....	93·3	89·3	61·7	42·8	....
1933	87·4	69·3	69·3	69·2	....	89·8	88·8	58·8	42·3	....
1934	93·4	83·5	80·5	86·5	....	95·5	96·8	59·6	46·2	....
1935	94·4	89·2	84·4	94·1	88·0	95·4	95·6	59·9	47·2	85·6
1936	96·8	97·9	102·2	93·7	96·9	98·1	98·7	61·1	48·8	94·6
1937	107·7	117·4	128·9	106·0	119·7	105·3	108·4	63·0	51·4	108·0
1938	102·0	102·9	100·9	104·8	105·0	101·7	101·2	63·7	51·7	102·0
1939	99·2	92·6	83·7	101·5	91·8	99·3	95·7	63·2	50·2	109·7
1940	108·0	96·1	85·4	106·7	96·8	106·8	101·8	65·7	52·6	131·4
1941	116·4	106·6	88·9	124·4	110·2	116·1	107·8	69·6	57·9	164·8
1942	123·0	127·1	109·7	144·6	133·1	131·6	119·2	72·9	63·4	195·7
1943	127·9	145·4	129·0	161·8	157·8	143·4	122·4	74·2	65·2	208·5
1944	130·6	155·3	144·5	166·1	172·4	148·0	126·0	74·6	65·5	212·4
1945	132·1	166·4	162·5	170·2	185·7	152·1	125·9	75·0	66·3	187·2
1946	138·9	179·5	177·9	181·2	204·1	157·0	128·0	77·5	70·0	171·9
1947	163·3	192·2	184·1	200·2	215·8	170·4	139·5	84·8	79·5	187·8
1948	193·4	232·1	200·6	263·7	255·8	197·6	173·1	97·0	97·5	196·3
1949	198·3	228·7	191·9	265·4	255·4	204·1	180·3	100·0	100·0	199·6
1950	211·2	236·7	191·9	281·4	260·8	210·4	189·9	102·9	102·6	211·5
1951	240·2	268·6	200·4	336·9	296·8	230·0	206·0	113·7	117·0	226·5
1952	226·0	247·2	216·9	277·5	274·4	243·1	215·8	116·5	116·8	233·0
1953	220·7	221·6	179·4	263·8	250·4	239·8	207·4	115·5	112·6	248·4
1954	217·0	211·8	167·4	256·2	234·8	237·2	203·3	116·2	112·2	244·6
1955	....	....	....	....	226·2	....	....	116·4	112·1	265·8
1955										
July	218·4	213·1	176·7	249·5	232·4	....	....	116·0	111·5	268·7
August	219·6	204·8	159·0	250·6	226·0	241·3	203·3	116·4	112·4	270·2
Sept	220·9	202·7	153·9	251·6	226·3	....	....	116·8	113·7	272·6
Oct	220·0	196·8	151·7	241·9	220·7	....	....	116·9	113·5	273·4
Nov	220·7	196·9	153·2	240·5	220·2	....	....	116·9	113·0	277·6
Dec	221·4	197·3	155·2	239·4	219·5	....	....	116·9	112·4	275·0
1956										
Jan	222·0	196·7	158·4	235·0	218·1	234·8	206·0	116·8	111·5	275·3
Feb	222·2	195·9	159·5	232·3	218·3	....	....	116·4	109·9	274·0
Mar	223·3	197·5	164·0	231·1	219·4	....	....	116·4	109·1	278·0
April	224·5	200·4	168·7	232·0	220·8	249·0	209·6	116·6	109·7	277·3
May	225·3	207·7	177·5	238·0	225·2	....	....	116·6	109·3	282·9
June	226·5	217·2	182·6	251·7	232·5	....	....	117·8	112·5	298·4

Source:—Dominion Bureau of Statistics, Ottawa.

(a) Prices at terminal markets.

(b) Subject to revision from August, 1954, to date for supplementary payments on grain.

(c) Exclusive of living costs. Includes farm implements, building materials, gasoline, oil, greases, feed, fertilizer, binder twine, seed, hardware, tax rates, interest rates and farm wage rates.

(d) Differs from composite index by exclusion of tax rates, interest rates, and farm wage rates.

THE ECONOMIC SITUATION

Agricultural Production.—The Index of the Physical Volume of Agricultural Production[1] in 1955 reached 150·1 (1935-39=100), according to preliminary estimates. This compares very favorably with the previous year's figure of 117·4 when poor grain crops in the Prairie Provinces brought the index to its lowest figure since 1947. Every province except Prince Edward Island showed gains in production over 1954, but in Nova Scotia, New Brunswick and Quebec production was lower than in 1953.

Gross National Product.—The Gross National Product continued to increase during the first quarter of 1956. The value of the total output of goods and services, seasonally adjusted at annual rates, amounted to $28·3 billion, an increase of 2·5 per cent over the fourth quarter of 1955 and about six per cent above the average of $26·8 billion for the year 1955 as a whole. The continued advance during the first quarter of 1956 is mainly a reflection of the increased volume of production, prices on the average showing only a moderate rise.

Gross national product, excluding accrued net income of farm operators, in the first quarter of 1956 was up $750 million above the last quarter of 1955, compared with an increase of $400 million in the first quarter of 1955, over the last quarter of 1954. Allowance being made for seasonal factors, the gain in production was concentrated in the mining, forestry, construction, transportation and other service groups. Manufacturing remained relatively unchanged from the previous quarter.

On the demand side, the economy received a strong stimulus from business investments in new non-residential construction, new machinery and equipment, business inventory accumulation and a continued advance in total consumer expenditure and exports. Within consumer expenditures, however, outlays for durable goods declined, reflecting a drop in purchases of new automobiles and television sets.

The expansion in business activity was accompanied by a rise in inventories of hard goods and industrial equipment items, price increases in investment type goods, and a change in the composition of imports with a concentration on iron and steel products and non-ferrous metals.

Investment.—A mid-year survey conducted by the Department of Trade and Commerce reveals planned expenditures of $8·0 billion, which would constitute a 28 per cent increase over the $6·2 billion spent in 1955. The commodity producing industries plan an outlay 40 per cent higher than that in 1955; utilities, 61 per cent and service industries 12 per cent.

The Department of Trade and Commerce points out that the planned investment of $8·0 billion in 1956 is unlikely to be attained. During the first half of this year, the annual rate of capital outlay was probably somewhat less than $7·5 billion. Because of the expected shortage of construction labor and difficulties in obtaining supplies of materials it seems unlikely that the rate of spending in the second half, after allowing for seasonal factors, will exceed that of the first half.

Foreign Trade.—The value of Canada's domestic exports reached an all-time monthly high of $428·5 million in May topping last year's total by 16·7 per cent. In the first five months of this year exports to all countries advanced 11·6 per cent to $1,846 million from $1,654 million a year earlier. The physical volume of exports, also a record, rose 12·5 per cent in May and 7·9 per cent in the five-month period, while prices averaged 3·8 per cent higher in May and 3·4 per cent in the cumulative period. Canada obtained reductions on more than $300 million worth of her exports, with about two-thirds of this amount exported to the U.S. market. United States reductions are restricted to 15 per cent of the current level and will be spread over a two-year period. A five per cent drop was effective June 30, with two more five-per-cent cuts at 12-month intervals. In return for concessions granted by other countries Canada has agreed to reduce rates by varying amounts on 115 items valued at $91 million and to refrain from raising the rates on 60 other items valued at $88 million.

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[1] Excludes Newfoundland.

CHANGES IN FARM BUSINESS ORGANIZATION IN NOVA SCOTIA

G. C. Retson

Farmers are constantly revising their management programs. New varieties, techniques and equipment are introduced from time to time with the hope that they may bring increased efficiency and higher returns. In contrast to changes in farm practice are those which take place in over-all farm business organization. These are of even greater importance but their development tends to be less perceptible and so gradual that they are frequently accepted as a matter of course. During recent years the rate of change has greatly accelerated. This has stimulated interest in various aspects of the farm business as well as speculation over future developments in organization.

Business organization varies widely from farm to farm and from area to area. It reflects the influence of historical and social as well as diverse economic factors. What are some of the major developments in recent years and how significant are they to the farmer? To what extent have changes occurred in an older established farming area such as Nova Scotia which is reasonably typical of the soil, climate, markets, and diversified type of farming to be found in the Atlantic Provinces?

The general picture of agriculture in Nova Scotia during the past 50 years is one of declining production. From 1901 to 1951 numbers of occupied farms dropped from 52,491 to 23,515 and the acreage in farms declined from 40 to 24 per cent of the total land area. There has been a substantial reduction in the acreage in crops and with the exception of poultry, in numbers of all major classes of livestock. This was offset to some extent by greater efficiency in production. Many reasons are advanced in explanation of the decline but the main cause is probably one of area competition. Many of the early settlements in the province were located in areas not well adapted to farming. Fear of floods, attacks by Indians and convenience in land clearing encouraged settlement on the higher and less productive ground. In later years competition with better land and particularly that on which machinery could be operated to advantage forced many of the early farms out of business. Farm abandonment and decline in rural population have been heavy and from 1901 to 1951 were the highest in Canada. The past 50 years have witnessed a movement away from less productive land to that more favorably located in respect to soils, climate, topography and markets. Within such areas the process of adjustment still continues but largely in the form of changes in business organization.

Specialization.—One of the major factors underlying changes in farm organization during the past 50 years has been the continuous demand on the farmer for added cash income to pay for the cars, household appliances and many other goods and services associated with a rising standard of living. To obtain the necessary funds he has tended to concentrate on his more remunerative enterprises and to drop many of the smaller side line activities, particularly those which provide little beyond farm or home requirements. One of the

Table 1.—Percentage of Farms Reporting various Types of Livestock and Livestock Numbers per Farm Reporting, Nova Scotia, 1921-51

Year	Cattle		Swine		Sheep		Poultry	
	Per cent of farms reporting	No. per farm	Per cent of farms reporting	No. per farm	Per cent of farms reporting	No. per farm	Per cent of farms reporting	No. per farm
1921	—[a]	—	54	1·8	31	18·2	79	21·3
1931	—[a]	—	52	2·2	25	20·2	76	41·3
1941	88	7·1	54	2·5	22	18·7	—[a]	—
1951	71	8·3	49	4·2	17	23·4	60	115·2

Source: Census of Canada.

[a] Not available.

more obvious indications of increased specialization is the movement away from a self-sufficient to a more highly commercialized type of farming. It is also evident in the decline in number of enterprises per farm and the increase in size of those which have been retained.

The Census does not provide comparable data on numbers of farms reporting various types of crops. It seems, however, that there has also been a tendency toward specialization in the major cash crops produced in the province. Many of the apple trees which were to be seen about farm homes or gardens 50 years ago have disappeared and fruit production is now concentrated mainly in the Annapolis Valley. There has probably also been a marked decline in the number of farms engaged in commercial potato production. Despite the often repeated warning against putting all the eggs into one basket, there appears to be a continued trend toward greater specialization in farm production. On a fairly substantial number of farms, one enterprise such as dairying, poultry, or fruit may account for a large percentage of total cash receipts. Just how far this trend will go is a matter of conjecture. Current indications are that it may continue for some time to come.

Farm Size.—The trend toward increased specialization has been accompanied by an increase in the size of the individual farm enterprise. It has also been associated with an increase in over-all farm size. From 1901 to 1951 the average size of farm increased from 93 to 135 acres, while the average area in crops rose from 14·2 to 20·3 acres per farm. There has also been a substantial increase in capital investment, much of which occurred since 1941. Part of the increase can be attributed to a rise in the price level. This is particularly true of livestock prices which reached an all-time high in 1951.

Table 2.—Average Investment per Farm in Real Estate, Machinery and Livestock, Nova Scotia, 1901-51

Year	Land and Buildings	Machinery and Equipment	Livestock
		- dollars -	
1901	1,078	59	195
1911	1,817	87	305
1921	2,249	214	423
1931	2,092	268	325
1941	1,994	332	353
1951	4,018	1,073	1,393

Source: Census of Canada.

An important factor contributing to the increase in capital is the rapid trend toward mechanization which occurred during World War II and the postwar period. Shortages of help have encouraged the substitution of machinery for labor. To date the farm labor situation has shown little, if any, improvement and barring a major recession the trend toward increased mechanization seems likely to continue.

The increase in farm capital frequently gives rise to speculation on the future role of the family farm in agricultural production. Although the average Nova Scotia farm is relatively small, it nevertheless involves a capital investment of $6,474. In one of the better agricultural areas such as Kings County, average investment is considerably higher at $11,115 per farm. This represents the value of real estate, livestock and equipment and does not include the funds necessary to finance current operations or to equip a home. The problem of securing control of such an amount of capital is likely to present a serious obstacle to a young man getting started in farming.

To date there is little indication of changes in farm organization resulting from increased capital requirements. Tenancy has shown little change during the past 50 years and in 1951 only two per cent of the farm land was operated by tenants. No statistics are available on father-and-son partnerships or agreements for transfer of property. It seems probable that some increase has occurred in such arrangements although the number of farms involved is probably quite small. It is also questionable if there has been any substantial increase in joint or co-operative use of equipment despite the general interest in the subject. The same may be said of corporate farming which appears to offer advantages in acquiring farm capital. The limited changes which have occurred to date do not discount possible future developments. During the war and postwar period incomes were rising and a considerable amount of capital expansion was financed from current earnings. Additional funds for farm purchases and improvement have also been available through agencies such as the Veterans Land Act, the Farm Loans Improvement Act, the Canadian Farm Loan Board and the Nova Scotia Land Settlement Board. Despite the assistance provided by such organizations it seems probable that the increase in farm size, if continued, may exert a more apparent influence on farm business organization.

Type of Farming.—The major source of farm receipts in Nova Scotia is the sale of livestock and livestock products and dairying is the main enterprise. Aside from the fruit growing areas of the Annapolis Valley, cash crop production is of limited importance as most of the acreage in crops is devoted to the production of feed for livestock. With an average of 78 acres per farm in woodland (highest in Canada) production of forest products is of considerable importance. Farming is also combined with a number of non-farm operations, such as forestry, off-farm employment and fishing. About 23 per cent of all units are classified as part-time farms. While no drastic changes in type of farming have taken place in the past 50 years a number of shifts in production have occurred which are of some significance.

From 1901 to 1951 there was a downward trend in the total number of livestock with the exception of poultry. However, as numbers of farms were also declining the net effect on farm organization was an increased emphasis on production of poultry and to a lesser extent, hogs and cattle. The total number of horses declined sharply, but there was only a slight reduction in the number of horses per farm. In the case of sheep there has been a sharp decline in total numbers and in the number of farms on which flocks are kept.

While over-all acreage has declined during the 1901-51 period crop production per farm changed very little aside from an increase in the hay acreage.

Table 3.—Changes in Crop Production in Nova Scotia, 1901-51

Year	Acres in Crop		Acres per Farm			Number Apple trees per farm
	Total	per farm	Hay	Grain	Potatoes	
1901	772,014	14·2	—[a]	—[a]	—[a]	36
1911	776,074	14·8	10·2	2·2	0·6	47
1921	688,060	14·5	9·9	4·0	0·7	45
1931	623,714	15·8	10·7	3·5	0·6	56
1941	575,934	17·5	12·2	3·5	0·6	61
1951	477,459	20·3	14·7	3·6	0·5	38

Source: Census of Canada.
[a] Not available.

Other major crops have remained quite stable with the exception of apples which increased up to 1941 but declined in recent years.

Changes in farm organization and type of farming are also indicated by data on cash receipts from the sale of farm products which are available for the period 1926-52. In comparing the various enterprises allowance must be made for changes in prices which occurred during this period.

A major change in cash receipts consists in the increased sales of poultry and eggs. Poultry production expanded rapidly during the war and postwar years with subsidy and freight assistance on feed grain probably the main factor involved. Major emphasis is on egg production with relatively little expansion in output of poultry meat comparable to that which has occurred in some other areas.

Much of the increase in receipts from other types of livestock and livestock products is accounted for by the advance in prices which occurred during this period. Hog numbers increased slightly from 1931 to 1951 but there was a tendency for other livestock to decline. Other shifts in production include an increase in milk sales per cow and a larger percentage of milk sold in fluid form. There was also an increase in numbers of beef cattle. This reflects the influence of higher prices for livestock, shortages of labor and possibly an increased activity on woods work in outlying areas.

In cash crops the major change is the decline in apple production. Before World War II the acreage in commercial orchards was increasing and receipts, although highly variable, were an important factor in farm cash income. Loss of overseas markets during the war and postwar years has resulted in a decline in commercial orchards from about two million to slightly less than one million trees. There was also a sharp reduction in sales of fresh fruit and an increase

Table 4.—Percentage of Cash Receipts from the Sale of Various Farm Products, Nova Scotia, 1926, 1938, 1939, 1952

Product	1926	1938	1939	1952
	– per cent –			
Potatoes	7·6	2·0	3·9	4·6
Fruits and vegetables	19·1	38·1	22·4	7·1
Other crops	6·7	2·4	3·0	0·5
Cattle and calves	8·7	9·6	14·5	13·2
Hogs	5·7	4·2	5·7	8·2
Sheep and lambs	3·5	1·4	1·8	1·3
Dairy products	28·7	21·8	21·9	27·4
Poultry and eggs	7·7	5·1	6·9	17·1
Other livestock products	2·3	2·7	3·0	2·1
Forest and maple products	10·0	12·7	16·9	18·5
Total	**100·0**	**100·0**	**100·0**	**100·0**

Source: Dominion Bureau of Statistics, Handbook of Agricultural Statistics, Part II—Farm Income.

in the volume marketed in processed form. Before World War II about 20 per cent of the crop was processed. In recent years about two-thirds of the crop has been disposed of through processors.

During the war there was a tendency for the grain acreage to decline as a result of the heavy importation of feed grains under the Subsidy and Freight Assistance Policies. The decline has continued in postwar years. This has been offset to some extent by the increased emphasis on forage production. Production of grass silage has increased rapidly and since 1949 there has been an increase of nearly 100,000 tons in silo capacity.

Another important change is the increased sale of forest products. Conservation measures have placed the farmer in a better position to compete with the larger woods operator. To the extent that his operations are mechanized, he also has an advantage in his tax exemption on purchases of motor fuel. Farm output of forest products is largely in the form of logs, lumber and pulp. Sales of fire wood have declined sharply in recent years. A comparatively recent development is the cutting of Christmas trees for the export market. Rail shipments to the United States in 1955 amounted to 1,453 cars. Another related development is the increased production of low-bush blueberries which, although not a forest product, are closely associated with and add balance to the farm forestry program.

Data on farm expenses which are also available for the 1926-52 period provide additional information on changes in the farm business. Total operating expenses in 1952 were over three times those of 1938. With due allowance for changes in the price level this reflects a substantial increase in cash requirements for farm operations. Major increases are those associated with mechanization, notably operating costs of car, truck, and tractor. The sharp increase in building repairs combined with a decline in interest payments reflects the influence of higher farm incomes during the war and early postwar years, whereas the substantial rise in expenses for fruit and vegetable supplies is associated with the extensive use of chemicals, sprays, etc. in recent years. The two major expense items, feed and labor, also advanced substantially. In the case of labor, the increase was comparable with that which occurred in wages and represents no significant change in the number of hired workers.

The increase in taxes is not as great as that for some other items but is a matter of considerable concern to farmers. The increase in non-farm population resulting from the move to the suburbs has meant a sharp increase in taxes in many farm areas. Since municipal costs are financed to a considerable extent by taxes on real estate and personal property, farmers often feel that they are forced to bear an unduly large share of the cost of education and other municipal services. On the basis of 1952 expenses and 1951 census data on numbers of occupied farms, the average Nova Scotia farmer paid $116 in taxes in 1952. In many sections taxes are much above average and in some cases are cited as a factor in farm abandonment.

In summary it may be stated that the past 50 years have been years of extensive change in farm business organization with the rate of change greatly accelerated in recent years. Major changes include increased specialization and scale of operations and a shift away from the less productive land to that more favorably located in respect to soils, climate, topography and markets. Changes in type of farming include increased emphasis on poultry and to a lesser extent on cattle and hogs. In recent years there has been an increase in beef cattle while horses and sheep have declined sharply. There has been a substantial increase in output of forest products. Higher cash operating expenses combined with greater specialization and larger scale of operation have increased the vulnerability of the farmer to changes in income. This in turn is reflected in increased interest in farm organizations and efforts to promote greater stability of income.

CHANGES IN FARM ORGANIZATION SOUTHWESTERN MANITOBA, 1946 and 1955

V. E. Nelson

Comparison of the business structure and organization of a group of farms on loam soils in southwestern Manitoba in 1946, with a similar group of farms in 1955, stresses the significance of recent changes in farm business trends and patterns (Table 1). This information was obtained by comparing samples of about equal numbers of two, three and four quarter-section farms.[1] These farms were located on Oxbow loam soils in the general area of Pipestone and Reston, and on Waskada loam soils in the area extending from Killarney to Waskada. These soils are much the same in productivity, the average annual yield of wheat being about 16 bushels per acre, which is one of the lowest long-time average yields in the province. Yields are extremely variable, as these soils are only moderately drought-resistant. The Waskada soils are about 75-85 per cent arable and the Oxbow soils are about 60-70 per cent arable. The non-arable land is made up mostly of sloughs, stream-beds and water runways with some scattered wooded areas.

Table 1.—General Characteristics of Farms Studied, Southwestern Manitoba, 1946 and 1955

Items	1946	1955
Total number of farms	112	82
Total acres per farm	480	480
Cropland acres per farm	347	365
Tenure: full owners—per cent of farms	45	71
part owners—per cent of farms	15	14
renters—per cent of farms	40	15
Average age of operators	49	42
Average years operating present farm	14	13
Per cent of farms with tractors	80	99
Tractors per 100 farms	86	126
Per cent of farms with combines	16	68
Per cent of farms with car or truck	96	99
Cars or trucks per 100 farms	116	121

Land Use.—The number of acres of cropland showed a small increase, more as a result of improving small parts of the farm rather than the addition of new farm land. At the same time, the proportion of cropland devoted to each crop changed somewhat (Table 2). The relatively large decrease in wheat acreage may have been a reflection of marketing difficulties for wheat in the last few years. The number of acres of oats decreased slightly but the acreage of barley remained relatively constant. The flax acreage increased considerably

Table 2.—Distribution of Cropland Acres, Southwestern Manitoba, 1946 and 1955

Crop	1946	1955	Change from 1946
	- per cent -		
Wheat	29	22	− 20
Oats	14	12	− 12
Barley	20	19	− 5
Flax	3	10	+227
Other	3	4	+ 36
Fallow	31	33	+ 14

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[1] The information for 1946 was obtained from farm business studies undertaken in that year, and the data for 1955 from a study of changes in farm organization.

Table 3.—Number of Animal Units According to Class of Livestock, Southwestern Manitoba, 1946 and 1955

Type	1946	1955	Change from 1946
	–average animal units per farm–		– per cent –
Horses	7·8	2·0	– 74
Cattle	16·0	15·9	
Hogs	1·6	1·1	– 31
Poultry (hens)	·8	·5	– 38
Total	**26·2**	**19·5**	**– 26**

and this was probably the result of a greater need for a cash crop, especially in the last two to three years. The other crops included buckwheat, rape, corn, rye, forage crops and improved pasture, with rye being the most important. There was only a small increase in the fallow acreage.

Livestock Numbers.—The number of horses declined considerably since 1946 when many were either still used as a source of power, or had not been disposed of on farms with tractors (Table 3). Cattle numbers remained fairly constant between 1946 and 1955 in this area.[1] Hog numbers decreased somewhat since 1946 and the same was true for poultry. Cattle were kept in fairly large numbers on some farms but hogs and poultry were generally kept solely for home consumption purposes.

Labor.—The average amount of labor used, measured in months per farm, declined about 19 per cent in the last ten years (Table 4). In terms of man-equivalents,[2] this was a decrease of from 1·65 to 1·33 man-equivalents per farm in total labor. The mechanization of crop production enabled the farmer to increase the number of acres operated per man-equivalent from 189 in 1946 to 271 in 1955. At the same time each man tended to handle fewer animal units, a change from 26·2 to 19·5. This change was almost all due to the decrease in the number of horses per farm.

Capital Investment.—The total investment[3] per farm increased nearly 50 per cent between 1946 and 1955 (Table 5). This was made up of increases of 39 per cent in real estate, 95 per cent in machinery and 12 per cent in livestock investment. These increases were a result of inflationary tendencies on the one hand and an increase in the actual amounts of these factors of production on the other.

Table 4.—Amount of Labour Used on Farms in Southwestern Manitoba, 1946 and 1955

Type	1946	1955	Change from 1946
	– average months per farm –		– per cent –
Hired labor	4·2	3·5	– 17
Unpaid family	3·6	1·0	– 72
Operator	12·0	11·5	– 4
Total	**19·8**	**16·0**	**– 19**

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[1] Department of Agriculture and Immigration, Province of Manitoba, Crop Bulletin Nos. 125-134, 1946-1955, Crop Districts I and II.

[2] A man-equivalent is the work done by one man working at least eight hours per day for twelve months.

[3] Capital investment is the total inventory of land and buildings, machinery and equipment, and livestock.

Table 5.—Investment in Real Estate, Machinery and Equipment, and Livestock on Farms in Southwestern Manitoba, 1946 and 1955

Type	1946		1955		Change from 1946	
	Per farm	Per cropland acre	Per farm	Per cropland acre	Per farm	Per cropland acre
	– average dollars–				– per cent –	
Real estate	9,311	26·83	12,960	35·51	+39	+32
Machinery	2,987	8·61	5,838	15·99	+95	+86
Livestock	2,153	6·21	2,418	6·63	+12	+1
Total	**14,451**	**41·65**	**21,216**	**58·13**	**+47**	**+40**

The increase in real estate investment was the result of more improved acres and building improvements. For example, the number of cropland acres increased by about 18 acres per farm. Also, most of the farmers in southwestern Manitoba acquired electricity between 1946 and 1955.

Machinery investment showed the greatest increase during this period. The increase was the result of an increase of about 66 per cent in the price of farm machinery,[1] and a 34 per cent increase in the physical machinery inventory. For example, tractor numbers were up 19 per cent and combine numbers 52 per cent.

The livestock investment remained almost the same. The number of animal units decreased by 25 per cent largely because of the fewer number of horses.

In 1946, land made up 64 per cent of the total investment per cropland acre and in 1955 it had fallen to 61 per cent. Machinery investment climbed from 21 to 28 per cent of the total investment per cropland acre. At the same time livestock investment per cropland acre dropped from 15 to 11 per cent of the total.

Cash Farm Expenses.—Total cash farm expenses averaged $1,841 per farm in 1946 and $2,332 in 1955, an increase of 27 per cent or $492 per farm. Machinery operating costs rose from $993 to $1,247, an increase of 26 per cent or $254. Machinery operating costs made up a little more than half the total operating costs in each case.

Table 6.—Farm Indebtedness, Southwestern Manitoba, 1946 and 1955

Item	1946		1955	
	Amount	Per cent of total debt	Amount	Per cent of total debt
	-dollars-	-per cent-	-dollars-	-per cent-
TYPE OF DEBT				
Long-term debt per farm (land)	570	69	918	53
Intermediate-term (machinery and equipment) debt per farm	68	8	465	27
Short-term debt per farm (operating expenses)	185	23	345	20
Average debt per farm	823	100	1,728	100
RELATIVE IMPORTANCE OF DEBT				
Percentage of farms with debt	....	50	....	75
Percentage of farms with long-term debt	....	26	....	35
Percentage of farms with intermediate-term debt	....	16	....	49
Percentage of farms with short-term debt	....	19	....	43

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[1] Dominion Bureau of Statistics, Ottawa, Canada. Price Index Numbers of Commodities and Services Used by Farmers.

In terms of cropland acres, the total cash farm expenses were $5.30 per acre in 1946 and $6.40 per acre in 1955. Machinery costs rose from $2.86 to $3.42 per cropland acre. Thus, farm expenses climbed 21 per cent per cropland acre and machinery accounted for a little more than half of this increase.

Summary.—This study of farms in southwestern Manitoba indicated some of the changes in farm business organization that have taken place throughout this part of the province. The average size of farm increased, labor input decreased, particularly family labor, and was accompanied by an increase in machinery and equipment investment. Land represented a smaller, and machinery a larger proportion of the total investment in 1955 than in 1946. The value of the total farm capital was about one and a half times greater than formerly, but at the same time intermediate and short-term farm debt combined had more than tripled.

CHANGES IN FARM ORGANIZATION OF GRAIN FARMS ON HEAVY AND MEDIUM TEXTURED SOILS ON THE DARK BROWN SOIL ZONE OF SASKATCHEWAN, 1939 to 1944 and 1954

R. A. Stutt

An insight into the extent and character of the changing aspects, in the postwar period, of the organization of prairie farms that are predominantly grain farms, may be gained through a comparative analysis of the results of two economic studies conducted, one in 1944,[1] and the other in 1954.[2] The findings illustrate some of the most significant features of the changes in land and labor utilization, mechanization, and size of the livestock enterprise.

The two studies were conducted in similar soil areas of Regina heavy clay and Weyburn loam[3] in central and west-central Saskatchewan. The comparative analysis of changes in farm organization will be restricted to three size groups of farms, the half section, section (640 acres) and two to three section farms.

The sample was designed to include only normalized grain farms. Criteria used in the selection of the 1954 sample, other than the matter of size were: (1) a maximum of 10 head of cattle and 10 hogs on half section farms and 15 head of each kind of medium and large sized farms; (2) farms having more than one-third of the land in pasture were eliminated; (3) the farmer must possess a full normal line of machinery and neither do nor hire unusual amounts of custom work; (4) the operator must be a full-time farmer except for minor competing off-farm work, have farmed for at least two years on the present farm, and must not have reached a semi-retirement age; (5) cases of complicated proprietorship were discarded.

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[1] See, Stutt, R. A., *An Economic Classification of Land in the Elrose-Rosetown-Conquest Area, 1944*, and *The Pattern of Mechanization and Wartime Changes in Farms in the Elrose-Rosetown-Conquest Area of Central and West Central Saskatchewan, 1944*. Processed Publications. Economics Division, Canada Department of Agriculture. Ottawa, 1948.

[2] The 1954 study area was the first area selected for a series of studies on "Changes in Farm Organization on Grain Farms of the Prairie Area of Saskatchewan". This series of studies is part of a continuing research project designed to provide up-to-date farm budget data for the grain growing prairie areas.

[3] Regina heavy clay and Weyburn loam occupy 2,209,600 and 5,440,500 acres or 11·5 and 28·2 per cent, respectively, of the approximate occupied acreage in the Dark Brown soil zone of the Province. This is based on data supplied by Soil Science Department, University of Saskatchewan. There are approximately 108 townships of Regina heavy clay and 162 townships of Weyburn loam in the wheat specialty areas of Saskatchewan. According to the average number of farms in these townships shown in the 1951 Census of Agriculture and by interpolating between size groups, the sample represents 3,400 and 5,460 farms of the two respective soil types. These data indicate the importance of farm organization information for grain farms located on these soil types in an over-all appraisal of farm policies and programs.

Records obtained in the 1944 survey were picked out for comparative study according to the same criteria used in the 1954 selection. Out of 67 farms on Regina heavy clay of the three size groups, 40 farms had characteristics similar to those in the 1954 final selection. The respective number of farms on Weyburn loam was 20 out of a total of 38 farms listed. The number of 1944 records having 1939 information was 37 on Regina heavy clay and 28 on Weyburn loam. A breakdown of the final selection of farms used in the comparative study, for this article, is shown in Table 1.

Land Use.—An appraisal or measure of the type and extent of changes in land use was made on the basis of the average acreage per farm in each kind of crops, of the proportion which the acreage in a given crop represented of the total cropland acreage and of the number of farms with a certain crop as a percentage of the total number of farms for each of the years 1939, 1944, and 1954 (Table 1).

Since land use in the period 1941 to 1944 was influenced by the Wheat Acreage Reduction Bonus program of the Federal Government and other factors, the 1939 data are considered to be representative of a more normal year at that period than the 1944 data. Comparing the growing of wheat in 1939 and 1954, the data show that this crop occupied about the same proportion

Table 1.—Changes in Land Use, Farms on Regina Heavy Clay and Weyburn Loam Soils, Dark Brown Soil Zone, Saskatchewan—1939 to 1944 and 1954

	Per cent of cropland			Per cent of farms reporting		
	1939	1944	1954	1939	1944	1954
FARMS ON REGINA HEAVY CLAY SOILS						
	SMALL FARMS (HALF SECTION)					
Wheat	58	38	51	100	88	100
Oats	8	5	1	100	88	20
Barley	4	6	3	30	50	10
Flax	2	20	1	20	75	5
Other crops and improved pasture	....	....	1	....	....	5
Summerfallow	28	31	43	100	100	100
Acres of cropland	295	298	310	....	....	....
Total acres	320	317	320	....	....	....
Number of farms	10	8	20	....	....	....
	MEDIUM FARMS (ONE SECTION)					
Wheat	54	38	51	100	100	100
Oats	5	6	1	100	94	11
Barley	1	5	2	19	50	22
Flax	2	15	4	19	78	22
Other crops and improved pasture	1	1	1	6	11	6
Summerfallow	37	35	41	100	100	100
Acres of cropland	620	613	605	....	....	....
Total acres	656	662	640	....	....	....
Number of farms	16	18	18	....	....	....
	LARGE FARMS (TWO AND THREE SECTIONS)					
Wheat	53	41	52	100	100	100
Oats	4	6	1	82	100	10
Barley	....	2	1	....	36	15
Flax	4	12	3	27	86	20
Other crops and improved pasture	....	....	....	....	....	....
Summerfallow	39	39	43	100	100	100
Acres of cropland	1,366	1,266	1,415	....	....	....
Total acres	1,590	1,421	1,455	....	....	....
Number of farms	11	14	20	....	....	....

Table 1.—Changes in Land Use, Farms on Regina Heavy Clay and Weyburn Loam Soils, Dark Brown Soil Zone, Saskatchewan—1939 to 1944 and 1954—Concluded

	Per cent of cropland			Per cent of farms reporting		
	1939	1944	1954	1939	1944	1954
FARMS ON WEYBURN LOAM SOILS						
	SMALL FARMS (HALF SECTION)					
Wheat	47	47	57	100	100	100
Oats	12	15	2	100	100	12
Barley	1	5	2	13	42	19
Flax	....	4	....	....	17	....
Other crops and improved pasture	....	1	2	7	17	25
Summerfallow	40	28	37	100	92	94
Acres of cropland	295	291	309	....	....	....
Total acres	361	358	339	....	....	....
Number of farms	15	12	16	....	....	....
	MEDIUM FARMS (ONE SECTION)					
Wheat	45	47	56	100	100	100
Oats	11	11	2	100	100	31
Barley	9	11	....	....	80	....
Flax	....	5	....	....	60	6
Other crops and improved pasture	3	....	2	17	20	25
Summerfallow	32	26	40	100	100	94
Acres of cropland	582	545	597	....	....	....
Total acres	705	637	639	....	....	....
Number of farms	6	5	16	....	....	....
	LARGE FARMS (TWO AND THREE SECTIONS)					
Wheat	56	36	56	100	100	100
Oats	7	3	2	100	67	50
Barley	....	32	2	14	100	21
Flax	....	11	....	....	100	7
Other crops and improved pasture	....	....	1	....	....	21
Summerfallow	37	18	39	100	67	100
Acres of cropland	1,126	1,175	1,410	....	....	....
Total acres	1,452	1,266	1,569	....	....	....
Number of farms	7	3	14	....	....	....

of cropland each year in the case of the large-size farms. However, in 1954, half section and one section farms on Regina heavy clay devoted three to seven per cent less of cropland to wheat and those on Weyburn about 10 to 12 per cent more. It was typical in both years for all farmers to grow wheat. As size of farm increased the proportion of wheat on summerfallow increased. Half section farms had about 168 acres of wheat, one section farms about 322 acres and two to three section farms about 767 acres of wheat.

On the Regina heavy clay farms, the smaller wheat acreage in 1944 than in 1939 was associated with a marked increase in flax acreage, especially on the small and medium-size farms. On the large-size Weyburn loam farms, the smaller wheat acreage in 1944 was associated with a marked increase in barley acreage and some in flax acreage, while the main adjustment in 1944 on the small and medium-size farms on this soil type was a reduction in summerfallow and some increase in coarse grains and flax. These changes in acreage are attributable to a combination of (1) the special incentives in the form of government bonuses offered to farmers; (2) a change in prices of coarse grains and flax relative to the fixed wheat price; (3) the relative yield advantage of alternative crops in the two soil areas; and (4) some patriotic rationalization.

The 1954 information indicates a major use of land in each soil area of wheat and summerfallow. A relatively small proportion of cropland was in other crops. A small number of farms reported other crops in all cases.

Machinery.—Data on farm machinery are available for two different years, 1944 and 1954. In this article, however, the analysis is restricted to data pertaining to some of the more important and common types of machines. These data have been tabulated in such a manner as to illustrate the changes in the proportion of farms reporting different kinds of machines, the average size of a machine and its age for the farms reporting this particular type of machine.

Tractors were common on nearly all farms in 1944, except on the half section Weyburn loam farms. In 1954, all farmers had tractors and many had a second and third tractor. Two tractors per farm were common on the large Regina heavy clay farms. Three- and four-plow tractors were common except on the half section Weyburn loam farms where the two- to three-plow tractors prevailed. Tractors in use in 1954 had not been operated for as long a period as those in use in 1944.

The percentage of farmers reporting combines was generally smaller in 1944. The size of combines was about the same in both years on Regina heavy clay farms. On Weyburn loam farms they were of similar size as in the heavier textured soils but larger than those on Weyburn loam in 1944. Self-propelled combines were fairly common in 1954.

Trucks were more common in 1954 than in 1944. One-ton trucks were common both years on Regina heavy clay and half-ton trucks on all farm sizes on Weyburn loam in 1944 and one-ton trucks in 1954. The average range in age of truck for farmers having trucks was about four to six years in 1954 as compared with five to 19 in 1944.

In tillage machines a considerable change has taken place in kind and use. There was a big reduction in single and double-disc harrows but a slight increase in the use of cultivators. There was a switch in cultivators from duck foot and other types to a heavy duty type. There was also a more common use of one-way discs and especially diskers in 1954. Rod weeders were found on about half of the half section farms; two-thirds of the one section farms; and all the two to three section farms on Regina heavy clay in 1954. This represents a sizeable increase on the medium and large-size farms. Rod weeders are not a common machine on farms on Weyburn loam.

Livestock.—On most of the farms included in the study the livestock enterprise was a small scale enterprise. Cattle or hogs were a major enterprise on only a few farms.

About 44 to 55 per cent of the farms on Regina heavy clay had cattle in 1954, as compared with 80 to 100 per cent in 1939 or 1944. The half section farms reporting cattle had a smaller number but the medium and large farms had about the same number of head of cattle in 1954 as in 1944 and 1939. Most of the farms on Weyburn loam soils had cattle in 1939 and 1944 but only about 50 to 56 per cent of the small and medium farms and 86 per cent of the two to three section farms had cattle in 1954. Average numbers of head of cattle per farm in 1954 were only 2·0, 5·6, and 7·1 for farms on the half section, one section and two to three section farms, located on Regina heavy clay and 6·1, 9·5, and 19·4 for the respective sizes of farms on Weyburn loam. Only on the medium and large-size farms on Weyburn loam did the farms with cattle average more than 10 in 1939 or 1944.

In 1954 hogs were not very common on the Regina heavy clay farms but were found on 50 per cent of the small farms, 44 per cent of the medium and 64 per cent of the large farms on Weyburn loam soils. In 1939 and 1944, on the other hand, hogs were found on over half the Regina heavy clay farms and on a much larger proportion of the farms on Weyburn loam soils. The average number of hogs per farm was much lower on Regina heavy clay farms but about the same on Weyburn loam farms in 1954 as in 1939.

Labor.—The most significant change in farm organization since 1939 had to do with farm labor. There was a marked decrease in each class of labor, namely, hired, unpaid family and operator's labor. Total farm labor, including that of the operator, decreased about 60 per cent on small and medium-size farms and about 50 per cent on large-size farms.

The number of farms with hired and unpaid family labor was smaller and the average number of months of hired and unpaid family labor was much smaller in 1954 than in 1944 and 1939. Because of the reduced scale of the livestock enterprise farm chores amounted to very little during most of the winter season.

SOME CHANGES IN FARM ORGANIZATION IN ALBERTA, 1926 to 1951

H. K. Scott

This article deals with the changes in farm organization that have occurred on the farms of Alberta during the 1926-1951 period. Basic data were secured from the Census of Canada.

It is not within the scope of this article to deal with all the changes that have occurred over the 25-year period. If consideration were given to all the changes cognizance would have to be made of the many technological developments that have taken place in recent years, with special recognition to farm mechanization.[1] In this article changes in numbers of farms, farm size, cultivated acreage, tenure, crops raised and livestock kept within three broad regions, are noted.

The agricultural areas of Alberta can be broadly separated into three regions, each having its characteristic type of farming. In the south and southeastern part of the province is found the more arid brown soil area. Large wheat specialty and livestock specialty farms are predominant in this region. In the central part of the province, where the precipitation is higher and the evaporation rate lower, are found the parkland black soils. This region has smaller farms that are generally of the mixed grain-livestock type. The north and northwestern parts of the province are the regions of most recent settlement. The growing season there is generally somewhat shorter than in the other two regions. This region is characterized by degraded black (transitional) and grey-wooded soils. The farms are wooded; in general they are smaller than in the other two regions and belong to the mixed grain-livestock type of farming.

The three regions were delineated on the basis of census divisions. Census divisions 1, 2, 3, 4, 5, 7 and part of 6 were considered as the short grass prairie region of brown soils. Census divisions 8, 10, 11, 14 and part of 6 were considered as containing the parkland region. Census divisions 9, 12, 13, 15, 16 and 17 were considered as delineating the wooded region. Census division 6 was separated into two parts along census sub-division boundaries and as closely as possible in accordance with the boundary between the brown soils and the black soils.

Number of farms.—In assembling the census data for the comparisons it was noted that the census definition of a farm changed during the 25-year period. In order that average characteristics per farm could be determined on a basis comparable to 1951 the following adjustments were made in the census numbers of farms for the other quinquennial years of the 25-year period. The Dominion Bureau of Statistics estimated that there were 93,200 farms in Alberta in 1941 when accounted for on a basis similar to the 1951 census enumeration. This estimate is 6,532 below the 99,732 farms enumerated in 1941. This reduction is explained on the basis of 962 or about one per cent of the enumerated farms, being too small on a 1951 income basis. It was also estimated in the census that 5,570 or 59 per cent of the non-resident farms were parts of other farms and should not be counted as separate units (Table 1).

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[1] Shaw, H. R. and R. C. Gilstorf, *Mechanization in Canadian Agriculture, The Economic Annalist*, Ottawa, Canada Department of Agriculture, February, 1954.

In 1946 there were 89,541 farms enumerated in the census. This number was reduced by one per cent so that an adjustment could be made allowing for the farms that were too small on the 1951 basis of enumeration. A second adjustment of 59 per cent of 4,296 of the non-resident farms was made so that the duplication in numbers caused by counting separately non-resident farms that were parts of other units would be removed. An adjusted total number of 84,350 farms resulted for 1946.

In 1936 there were 100,358 occupied farms enumerated in the census. There were 9,804 non-resident farms or 9·8 per cent of the reported farms that were mainly parts of other farms but counted separately. In addition it was assumed that as in 1941 approximately one per cent of 1,004 farms were too small by the 1951 definition to be considered as farms. If the total enumerated farms are then reduced by 10,808 farms the adjusted number of farms for 1936 would be 89,550.

Table 1.—Number of Farms by Regions in Alberta and Percentage Comparison with 1926 for the Six Census Years 1926 to 1951 Adjusted to a Basis Comparable to 1951 Census Definition of a Farm [a]

Census Years		Type of farming region			All Alberta
		Wheat and ranching	Parkland mixed farms	Wooded farms	
1926	Number of farms	25,921	32,002	10,900	68,823
	Percentage of 1926	100·0	100·0	100·0	100·0
1931	Number of farms	28,847	39,010	19,060	86,917
	Percentage of 1926	111·3	121·9	174·9	126·3
1936	Number of farms	27,136	41,730	20,684	89,550
	Percentage of 1926	104·7	130·4	189·8	130·1
1941	Number of farms	27,274	43,668	22,258	93,200
	Percentage of 1926	105·2	136·4	204·2	135·4
1946	Number of farms	24,523	40,046	19,781	84,350
	Percentage of 1926	94·6	125·1	181·5	122·6
1951	Number of farms	22,455	40,621	21,239	84,315
	Percentage of 1926	86·6	126·9	194·8	122·5

[a] Adjusted computation from *Census of Agriculture, 1926, 1931, 1936, 1941, 1946 and 1951.* Ottawa, Dominion Bureau of Statistics.

Similar adjustments were made for 1931 and 1926. The number of non-resident farms was not available but was calculated by taking 9·8 per cent of the reported census number of farms. The adjustments for farms that were too small were made on the basis of one per cent of the enumerated number of farms. The resulting adjusted numbers for each year were 86,917 and 68,823 farms respectively. The adjusted numbers of farms were then proportionally distributed, on the basis of the census numbers of farms for each of the six census years, for the three general type of farming regions of the province (Table 1).

Although the adjusted number of farms increased in the province as a whole from 1926 to 1951 the rates of increase were different for each of the three regions. The prairie or brown soils region experienced a decrease of about 13 per cent in farm numbers compared with increases of 27 and 95 per cent in the parkland and wooded regions respectively. The peak in the adjusted numbers of farms occurred in 1931 in the short grass region and in 1941 in the black soils and the grey and degraded black soils regions.

Farm size.—Accompanying the decrease in numbers of farms in the wheat-ranching region of the province there was an increase in the average total farm size. The average size of farms in this region was 571 acres in 1926 and 994 acres in 1951, an increase of about 74 per cent. In the other two areas the total size of farms on the average increased only slightly. In the parkland region the total size increased from 332 acres to 367 acres, and from 287 to 340 acres between 1926 and 1951 in the wooded region (Table 2).

Improved acreage per farm increased in each of the regions over the 25-year period. In both the prairie and the parkland regions it increased by about 50 per cent, from 295 to 449 acres and 142 to 215 acres respectively. The more recently settled and smaller farms of the wooded region showed the greater proportional increase, about 76 per cent from 92 to 162 improved acres per farm.

Table 2.—Average Occupied and Improved Acreage per Farm, by Regions, in Alberta, for the Six Census Years 1926 to 1951 [a]

Census year	Type of farming region					
	Wheat and ranching		Parkland mixed farms		Wooded farms	
	Acres	% of 1926	Acres	% of 1926	Acres	% of 1926
OCCUPIED AREA PER FARM:						
1926	571	100·0	332	100·0	287	100·0
1931	718	125·7	333	100·3	278	96·9
1936	770	134·8	330	99·4	283	98·6
1941	816	142·9	332	100·0	293	102·1
1946	859	150·4	350	105·4	322	112·2
1951	994	174·1	367	110·5	340	118·5
IMPROVED AREA PER FARM:						
1926	295	100·0	142	100·0	92	100·0
1931	328	111·2	167	117·6	92	100·0
1936	341	115·6	168	118·3	101	109·8
1941	354	120·0	180	126·8	118	128·3
1946	384	130·2	195	137·3	141	153·3
1951	449	152·2	215	151·4	162	176·1

[a] Adjusted computation from *Census of Agriculture, 1926, 1931, 1936, 1941, 1946 and 1951.* Ottawa, Dominion Bureau of Statistics.

Farm tenure.—The tenure position or the proportion of occupied land owned by the operators varies with the size of farm. The larger farms located in the wheat-ranching region of the province have a smaller proportion of the acreage owned by the farm operators, but the acreage owned is larger than in the other two regions. As the farm size has been increasing in the prairie region the proportion of the occupied acreage owned has decreased from 64 to 56 per cent over the 1926-1951 period. In the parkland and wooded region the owned portion of the farmed acreage has remained more constant with only a small decrease being evident over the same period. In the six individual years for which data are reported the peak year for ownership was in 1931 for the black soils and the wooded regions. Although the acreage owned per farm was very little higher in that year the percentages owned were about 80 and 86 per cent in the two areas respectively, compared with 75 and 77 per cent in 1951.

Land use.—Wheat as a crop has decreased in relative importance when considered as a proportion of total improved land in the three agricultural regions of Alberta. In the brown soils region where wheat specialty and cattle ranching are the common types of farms the acreage in wheat per farm increased from 146 acres to 175 acres on the average but decreased from 49·5 per cent of the improved acreage in 1926 to 39·0 per cent in 1951. The proportional decrease was greater in the parkland region where the average acreage of wheat per farm decreased from 63 acres to 44 acres and from 44 per cent of the improved acreage in 1926 to 20 per cent in 1951. The acreage in wheat per farm in the wooded region remained the same with 33 acres of wheat in 1926 and in 1951 on the average farm but its importance as a crop decreased from about 36 per cent of the improved acreage in 1926 to 20 per cent in 1951 (Table 3).

Oats as a crop has changed little in relative importance in the three general regions of Alberta despite the decrease in horse population and the increase in tractor power. On the average the acreage seeded to oats on the farms of the three areas increased from 26 acres to 28 acres in the prairie region, from 31 to 38 acres in the parkland region and from 25 acres to 33 acres in the wooded region. The proportional change shows a slight decrease in relative importance in the three regions, from about nine to six per cent in the prairie region, from 22 to 18 per cent in the parkland and from 27 to 20 per cent in the wooded area.

Table 3.—Average Land Utilization per Farm as a Percentage of Improved Acreage, by Regions, in Alberta, for the Six Census Years 1926 to 1951 [a]

Region and census year	Land utilization as a percentage of improved acreage						
	Wheat	Oats	Barley	Seeded hay	Improved pasture	Summer-fallow and idle	Other
				– per cent –			
WHEAT AND RANCHING:							
1926	49·5	8·8	1·0	1·4	3·0	32·5	3·8
1931	47·2	8·2	1·8	1·8	3·4	34·8	2·8
1936	47·2	7·6	1·8	2·0	2·6	35·2	3·6
1941	39·3	7·1	2·8	2·3	2·5	43·2	2·8
1946	43·0	7·3	3·1	2·9	2·9	36·7	4·1
1951	39·0	6·2	5·8	3·1	4·9	36·3	4·7
PARKLAND MIXED FARMS:							
1926	44·4	21·8	6·3	1·4	1·4	19·6	5·1
1931	43·1	19·2	7·2	1·2	2·4	20·4	6·5
1936	35·7	19·6	10·1	2·4	3·0	25·0	4·2
1941	26·7	20·6	13·3	3·3	3·3	30·0	2·8
1946	25·1	19·0	14·9	4·6	4·6	28·2	3·6
1951	20·5	17·7	21·4	5·6	5·6	26·0	3·2
WOODED FARMS:							
1926	35·9	27·2	4·3	3·3	2·2	20·6	6·5
1931	38·0	23·9	4·3	3·3	2·2	21·7	6·6
1936	32·7	21·8	6·9	5·0	3·0	25·7	4·9
1941	25·4	21·2	10·2	5·1	3·4	30·5	4·2
1946	26·2	19·9	11·3	8·5	4·2	27·0	2·9
1951	20·4	20·4	17·3	12·3	4·3	23·4	1·9

[a] Adjusted computation from *Census of Agriculture, 1926, 1931, 1936, 1941 1946 and 1951.* Ottawa, Dominion Bureau of Statistics.

The acreage seeded to barley, however, has shown a marked change in each of the three regions. In the brown soils region the acreage of barley sown on the average farm increased from three acres to 26 acres or from one to about six per cent of the improved acreage. In the black soils region the average acreage of barley per farm increased from nine acres to 46 acres or from six to 21 per cent of the improved acreage. On the wooded soils a marked increase in the importance of barley was also evident with an increase from four to 28 acres of barley per farm or an increase from about four to 17 per cent of the improved acreage.

The acreage of farm land seeded to legumes and grasses for hay also increased in each region over the 25-year period. In the wheat-ranching region the acreage seeded to tame hay increased from four acres in 1926 to 14 acres in 1951 on the average farm or from about one per cent to three per cent of the improved acreage. In the mixed-farming black soils region there was an average increase in seeded hay land from two to 12 acres per farm or from about one per cent to about six per cent of the improved acreage over the reported period. The largest relative increase in seeded forage took place in the wooded region where the average acreage per farm increased from three to 20 acres or from about three per cent to about 12 per cent of the improved land.

The brown soils region had an increase of from nine acres to 22 acres per farm in seeded pasture land compared with an increase from two to 12 acres in the parkland region and from two to seven acres in the wooded region.

The acreage of cropland that is summerfallowed or left lying idle each year was higher in 1951 than in 1926. The Wheat Acreage Reduction legislation which was in effect in 1941 resulted in a proportionally higher amount of the improved land not being cropped in that census year. This same legislation appears to coincide with the trend to a smaller proportion of the improved land being in wheat. In 1926 the average farm of the prairie region had 96 acres or about 32 per cent of the improved land in summerfallow or left idle compared with 163 acres or 36 per cent in 1951. In the parkland the average farm had 28 acres or about 20 per cent of the improved land not cropped in 1926 compared with 56 acres or 26 per cent in 1951. The wooded region experienced a similar trend, but not as marked. There the average farm had 19 acres or about 21 per cent of the improved land summerfallowed or left idle in 1926 compared with 38 acres or 23 per cent in 1951.

Livestock holdings.—The number of cattle kept on the average farm in the wheat specialty-livestock specialty region increased from 20 head in 1926

Table 4.—Average Number of Cattle and Hogs per Farm, by Regions, in Alberta, for the Six Census Years 1926 to 1951 [a]

Census years	Type of farming region					
	Wheat and ranching		Parkland mixed farms		Wooded farms	
	Number of head	Per cent of 1926	Number of head	Per cent of 1926	Number of head	Per cent of 1926
CATTLE NUMBERS PER FARM:						
1926	20	100·0	16	100·0	12	100·0
1931	18	90·0	12	75·0	17	58·3
1936	24	120·0	16	100·0	11	91·7
1941	20	100·0	14	87·5	9	75·0
1946	28	140·0	17	106·2	11	91·7
1951	31	155·0	16	100·0	9	75·0
HOG NUMBERS PER FARM:						
1926	7	100·0	13	100·0	9	100·0
1931	11	157·1	15	115·4	9	100·0
1936	7	100·0	13	100·0	7	77·8
1941	12	171·4	23	176·9	16	177·8
1946	7	100·0	15	115·4	9	100·0
1951	8	114·3	14	107·7	9	100·0

[a] Adjusted computation from *Census of Agriculture, 1926, 1931, 1936, 1941, 1946 and 1951.* Ottawa, Dominion Bureau of Statistics.

to 31 head in 1951, an increase of 55 per cent over the 25-year period. In the other two regions the average number of cattle per farm fluctuated little (Table 4).

On the average, the number of hogs per farm was little different in 1951 than in 1926. There was an increase in hog numbers during the war years on the farms of the three regions. In 1951 there were eight hogs on the average farm in the brown soils region compared with 14 in the parkland and nine in the wooded region.

Sheep are of little importance to the average farms of the three delineated regions of Alberta. In the parkland and the wooded regions most of the farms had no sheep. In fact, only six per cent, or 5,327 farms, kept sheep in the whole province in 1951. Most of the sheep are raised in large flocks in the brown soils region. In this region there was a decrease in the average number of sheep kept per farm from 15 in 1926 to only 10 in 1951.

CHANGES IN FARM ORGANIZATION IN BRITISH COLUMBIA

D. C. CROSSFIELD

British Columbia has a wide variety of topographic and climatic conditions and its agriculture includes many different types of farming centred in almost as many widely scattered areas throughout the province. However, although local conditions may be responsible for changes in organization and development within an area, there are economic and other factors which influence the changes in the organization of farms in most areas and types of farming throughout British Columbia.

One important factor is the scarcity and high price of labor. British Columbia is at present going through a period of rapid industrial development and farmers are finding it increasingly difficult to compete for labor with the wages and working conditions available in other industries.

In several parts of British Columbia urban development is encroaching on land formerly used for agriculture and the high land prices based on residential and industrial uses make the investment in real estate required by a farmer very much higher than that required even only five years ago.

Partly in an effort to reduce the required amount of scarce and high priced labor the British Columbia farmer is turning to mechanization and other technological advances, all of which require the use of more capital.

Agriculture in British Columbia being concentrated in widely scattered areas, some of the more important of these areas will be considered separately.

The Lower Fraser Valley.—The area known as the "Fraser Valley" includes the area from Hope west to the mouth of the Fraser river taking in both sides of the river and all the Delta land.

Dairying and poultry farming are the most prominent enterprises in the Fraser Valley. More than 66 per cent of the cash returns for dairy production in the province and more than 65 per cent of the poultry returns come from the valley.

Possibly the most significant changes in farm organization are taking place in the Fraser Valley. The farm lands of the Fraser Valley are adjacent to the city of Vancouver, the largest concentration of population and the greatest industrial centre in British Columbia. Potential farm labor has the alternative opportunity of work in the industries of Vancouver, New Westminster and the several smaller centres in the vicinity.

The increasing population and industrial development in this area and its consequent demand for more space has pushed urban development until

Table 1.—Distribution of Farm Capital, Fraser Valley Dairy Farms, 1946-1954

Item	Average value per farm 1946	1954
	-dollars-	
Real estate	13,226	27,313
Livestock	3,855	8,240
Machinery and equipment	2,034	6,103
Feeds and supplies	752	1,341
Other	—	80
Total	**19,867**	**43,077**

it is seriously encroaching on farm lands. The effect on the price of land is such that the capital required for real estate on a farm has increased tremendously in recent years. A comparison of the investment required on a typical dairy farm in a study in the Fraser Valley in 1946 with that in a similar study in 1954 will be of interest here. The average farm capital investment increased from $19,867 in 1946 to $43,077 in 1954. Of this investment 67 per cent was in real estate in the 1946 study and 63 per cent in the 1954 study.

Table 1 gives the necessary data for a comparison of investments and their distribution on Fraser Valley dairy farms in 1946 and 1954. Examination of the table will show that investments in livestock and machinery have also increased materially.

Farmers have to compete with the high wages and benefits that the expanding industry of the district has to offer, and consequently the cost and the quality of the hired help is an ever-increasing problem. The average cost per farm for labor in 1946 was $470 per year as against $794 in 1954.

The cost of purchased feed has also increased between 1946 and 1954 to the point where it is a factor influencing changes in farm organization. A comparison of the prices of the three main grains used in the dairy industry illustrates the rise in feed costs (Table 2).

The effects of the foregoing changes have forced many farmers to change a number of farm practices in order to combat higher costs and adjust to changing conditions.

Capital outlay for machinery and equipment, as illustrated in Table 1, has increased and this is a direct result of trying to solve some of the labor problems. In the poultry industry also mechanization has helped the farmer reduce the amount of labor required. In the large flocks it is now possible for one man to handle from 3,000 to 4,000 birds quite efficiently.

In the dairy business a gradual change in barn construction and milking procedure is taking place. This again is a means of reducing labor costs. The merits of loose housing with milking parlors or stanchions as compared with the conventional types of stanchion feeding and milking have been questioned by various factions in the dairy industry.

Table 2.—Prices of Some Grains, Used in the Dairy Enterprise, British Columbia, 1946 and 1954

Grain	Cost — 1946 [a]	Cost — 1954 [b]
Wheat	$33.00 per ton	$63.00 per ton
Oats	$36.00 per ton	$55.00 per ton
Barley	$32.00 per ton	$52.00 per ton

Source: Markets Bulletins, British Columbia Department of Agriculture, 1946 to 1954.
a Delivered to farm.
b Vancouver price.

Possibly the most beneficial change to the farmer has been in the feeding of dairy cows. This change applies not only to the dairy industry in the Fraser Valley but throughout the province. It applies also to the beef industry of the province.

To overcome the increase in the price of purchased grain, the farmer has been encouraged to use his own acreage more effectively. Through the use of technological advances such as improved seeds, a greater variety of fertilizers, spray materials to control weeds and disease, and good tillage practices, plus the use of competent advice, pasture, forage and grain yields have been increased. A notable increase in silage feeding has resulted directly from this phase of operation. Changes such as these are helping to keep feed costs down.

Increased use of herd improvement programs such as artificial insemination, bull improvement service, and the keeping of records have assisted materially in both dairy and beef cattle enterprises.

The price of real estate has increased to the point where farmers are finding it more difficult to buy suitable land for farm use. To assist farmers who have not fully developed the land they own the Provincial Government has for several years carried on a program of supervised land clearing and has assisted the farmers in financing the clearing by spreading the payment over a period of four years. In the Fraser Valley this program became operative in 1956. It will enable farmers to use arable acreage which they have been unable to use in the past because of the high cost of clearing.

Vancouver Island.—Much the same situation is found on Vancouver Island as in the Fraser Valley. This is especially true of the southern end of the Island around Victoria. As in the Fraser Valley, urban development is expanding and pushing the farm acreage back. Here again the vegetable and small fruit growers and the producers of special horticultural crops are competing with urban development. The population in the Victoria area, including the Saanich Peninsula, increased from 111,350 in 1948 to 125,300 in 1954, an increase of about 12 per cent. In the organized areas or municipalities around Victoria taxes have increased to such a degree that some of the larger farms have been forced to subdivide and go into more intensive forms of agriculture.

Sprinkler irrigation is being used in the Saanich Peninsula and the Cowichan Valley in an effort to overcome some of the increase in feeding and other costs. This has helped to increase production of pasture, hay, vegetables and small fruits. For example, with the aid of irrigation farmers are able to harvest two cuttings of grass, one for silage and one for hay, where without the aid of irrigation one cutting only was possible. Without irrigation the farmer was too dependent on the weather. Sprinkler irrigation has enabled him to exert a greater measure of control over his cropping practices.

In the past eight years extensive land clearing sponsored by the Provincial Government on Vancouver Island has enabled some part-time farmers to become full-time farmers and at the same time has enabled the full-time operator to expand his farm unit into a more economic unit.

Okanagan and Cariboo.—Areas like the Okanagan and Cariboo, where agriculture is the predominant industry, are also experiencing changes. In the fruit industry new developments in thinning sprays and in sprays to combat disease and insects are being used very effectively.

A change over from furrow to sprinkler irrigation is having a decided effect in controlling erosion, weed seeds and actual loss of water. It is also an added convenience to the operator as he is able to use his hours of labor to greater advantage. Practically all new orchards being brought into production are using sprinkler irrigation.

The beef industry in the Cariboo is also in a period of change. Instead of relying on native grasses from sloughs and haylands, the rancher is giving attention to improving his haylands and pastures, in order to provide a good quality of winter feed. Sprinkler irrigation is coming into use and where it is used it is improving pasture yields very substantially. In some cases ranchers are raising their breeding stock on limited acreage through the use of irrigation. Winter feed in the form of silage is being more widely used.

Central Interior.—The central interior of British Columbia which extends from Prince George west to Terrace is at present undergoing considerable development. For many years lack of land development for expansion has been a limited factor in agriculture. The scarcity of adequate equipment, the high cost of land clearing, and the generally poor economy of the area combined to keep agriculture in the area at a low ebb. In 1946 land clearing equipment under the sponsorship of the Provincial Government began operating in Central British Columbia. Since that time very substantial acreage has been cleared. The government assisted land clearing programs, coupled with an active lumbering industry which has enabled farmers to further their development by working off the farm to obtain needed capital, has resulted in this area possessing a rapidly developing agriculture at the present time.

UNITED NATIONS PUBLICATIONS

World Economic Survey 1955. Department of Economic and Social Affairs, New York. (In Canada: The Ryerson Press, Toronto and Periodica Inc. Montreal). April 1956. pp. XI + 201.

This report is the eighth in a series of comprehensive reviews of world economic conditions published by the United Nations. It is issued in response to General Assembly resolution 118 (II), in which the Secretary-General was asked to prepare annual factual surveys and analyses of world economic conditions and trends. The basic data used in the report are, in general, as published in governmental or inter-governmental sources, or as officially reported to the United Nations and its specialized agencies.

The survey is divided into two parts. The first reviews the economic growth in the post-war decade, the second is confined to current economic developments. The introductory chapter to the report attempts an appraisal of the post-war record.

This survey states that the economic record of the past decade is superior to that of the decade following the first World War. At the same time the problem of mass poverty in a large part of the world remains as stubborn as ever, and that it may be questioned whether the scope and scale of present programs represents the world's optimum contribution toward the accepted objective of economic development.

In dealing with the current situation, the survey states that expansion was the keynote of change during 1955 in the industrially developed, private enterprise economies, while developments in underdeveloped countries were uneven. The outlook for the developed countries in 1956, however, is for a slowing down in expansion, and as a result, some less developed countries foresee a setback in export markets. As for the centrally planned economies in 1955, the survey reports that industrial expansion and better harvests contributed to higher activity and that plans underway continued to provide for rapid growth in heavy industry, with greater emphasis than before on agriculture.

THE ECONOMIC ANNALIST

A BIMONTHLY REVIEW OF AGRICULTURAL BUSINESS

MARKETING SERVICE, ECONOMICS DIVISION
J. F. BOOTH, Chief

OCTOBER 1956 Vol. XXVI, No. 5

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Published by Authority of the Right Honourable James G. Gardiner
Minister of Agriculture

ANNUAL AND MONTHLY INDEX NUMBERS

Wholesale Prices, Farm Prices and Living Cost Indexes

Year and Month	General Wholesale Price	Wholesale Prices of Canadian Farm Products[a]			Farm Prices of Agricultural Products[b]	Prices of Commodities and Services used by Farmers		Consumer Price		Industrial Production
		Total[b]	Field[b]	Animal		Composite[c]	Equipment and Materials[d]	Total	Food	
	1935–39=100							1949=100		1935–39=100
1913	83·4	....	....	....	....	....	85·4	49·2	44·4	....
1914	85·4	....	....	....	....	85·3	90·2	49·6	46·0	....
1915	91·8	....	....	....	....	91·6	96·9	50·3	46·8	....
1916	109·8	....	....	....	....	100·5	101·7	54·2	51·8	....
1917	148·9	....	....	....	....	140·5	140·7	63·7	66·9	....
1918	166·0	....	....	....	....	160·2	164·1	72·0	76·9	....
1919	174·7	....	....	....	....	167·9	169·1	78·8	82·2	....
1920	203·2	....	....	....	....	186·5	190·1	90·5	94·4	....
1921	143·4	....	....	....	....	152·5	147·4	80·9	72·5	....
1922	126·8	....	....	....	....	134·1	124·6	74·9	61·5	....
1923	127·7	....	....	....	....	130·6	118·3	75·2	61·9	....
1924	129·5	....	....	....	....	131·9	122·3	74·0	60·7	....
1925	133·8	....	....	....	....	131·8	123·2	74·6	63·4	....
1926	130·3	144·4	158·5	130·2	....	130·6	119·9	75·9	66·6	....
1927	127·3	138·6	149·4	127·8	....	131·2	119·9	74·6	65·3	....
1928	125·6	136·3	134·3	138·2	....	129·3	118·3	75·0	65·6	....
1929	124·6	140·8	137·2	144·4	....	127·9	117·6	75·8	67·1	....
1930	112·9	119·5	105·8	133·3	....	117·0	105·6	75·3	65·6	....
1931	94·0	78·9	65·0	92·7	....	100·9	92·2	67·9	51·4	....
1932	86·9	65·5	60·4	70·5	....	93·3	89·3	61·7	42·8	....
1933	87·4	69·3	69·3	69·2	....	89·8	88·8	58·8	42·3	....
1934	93·4	83·5	80·5	86·5	....	95·5	96·8	59·6	46·2	....
1935	94·4	89·2	84·4	94·1	88·0	95·4	95·6	59·9	47·2	85·6
1936	96·8	97·9	102·2	93·7	96·9	98·1	98·7	61·1	48·8	94·6
1937	107·7	117·4	128·9	106·0	119·7	105·3	108·4	63·0	51·4	108·0
1938	102·0	102·9	100·9	104·8	105·0	101·7	101·2	63·7	51·7	102·0
1939	99·2	92·6	83·7	101·5	91·8	99·3	95·7	63·2	50·2	109·7
1940	108·0	96·1	85·4	106·7	96·8	106·8	101·8	65·7	52·6	131·4
1941	116·4	106·6	88·9	124·4	110·2	116·1	107·8	69·6	57·9	164·8
1942	123·0	127·1	109·7	144·6	133·1	131·6	119·2	72·9	63·4	195·7
1943	127·9	145·4	129·0	161·8	157·8	143·4	122·4	74·2	65·2	208·5
1944	130·6	155·3	144·5	166·1	172·4	148·0	126·0	74·6	65·5	212·4
1945	132·1	166·4	162·5	170·2	185·7	152·1	125·9	75·0	66·3	187·2
1946	138·9	179·5	177·9	181·2	204·1	157·0	128·0	77·5	70·0	171·9
1947	163·3	192·2	184·1	200·2	215·8	170·4	139·5	84·8	79·5	187·8
1948	193·4	232·1	200·6	263·7	255·8	197·6	173·1	97·0	97·5	196·3
1949	198·3	228·7	191·9	265·4	255·4	204·1	180·3	100·0	100·0	199·6
1950	211·2	236·7	191·9	281·4	260·8	210·4	189·9	102·9	102·6	211·5
1951	240·2	268·6	200·4	336·9	296·8	230·0	206·0	113·7	117·0	226·5
1952	226·0	247·2	216·9	277·5	274·4	243·1	215·8	116·5	116·8	233·0
1953	220·7	221·6	179·4	263·8	250·4	239·8	207·4	115·5	112·6	248·4
1954	217·0	211·8	167·4	256·2	234·8	237·2	203·3	116·2	112·2	244·6
1955	....	....	....	....	226·2	....	....	116·4	112·1	265·8
1955										
Oct	220·0	196·8	151·7	241·9	220·7	....	....	116·9	113·5	273·6
Nov	220·7	196·9	153·2	240·5	220·2	....	....	116·9	113·0	277·8
Dec	221·5	197·3	155·2	239·4	219·5	....	....	116·9	112·4	275·2
1956										
Jan	222·0	196·7	158·4	235·0	218·1	234·8	206·0	116·8	111·5	275·5
Feb	222·2	195·9	159·5	232·3	218·3	....	....	116·4	109·9	274·2
Mar	223·3	197·5	164·0	231·1	219·4	....	....	116·4	109·1	278·3
April	224·5	200·4	168·7	232·0	220·8	249·0	209·6	116·6	109·7	278·9
May	225·3	207·7	177·5	238·0	225·2	....	....	116·6	109·3	278·3
June	226·5	217·2	182·6	251·7	231·8	....	....	117·8	112·5	286·4
July	226·6	226·6	196·9	256·4	238·1	....	....	118·5	114·4	291·2
August	227·0	214·4	171·1	257·6	232·5	254·3	210·7	119·1	115·9	286·9
Sept	....	....	....	....	....	....	....	119·0	115·5	....

Source:—Dominion Bureau of Statistics, Ottawa.

(a) Prices at terminal markets.

(b) Subject to revision from August, 1955, to date for supplementary payments on grain.

(c) Exclusive of living costs. Includes farm implements, building materials, gasoline, oil, greases, feed, fertilizer, binder twine, seed, hardware, tax rates, interest rates and farm wage rates.

(d) Differs from composite index by exclusion of tax rates, interest rates, and farm wage rates.

THE ECONOMIC SITUATION

Consumer Prices.—The consumer price index reached a new high of 119·1 in August, an increase of 0·5 per cent since July 1956 and 2·3 per cent since August 1955. The latest increase was largely due to a rise of 1·3 per cent in the food index, roughly equivalent to the usual July-August seasonal increase. Higher prices were recorded for tomatoes, eggs, all cuts of meat, coffee and grapefruit and lower prices were recorded for potatoes, oranges and fresh vegetables.

The shelter component of the index rose to 133·0 from 132·7 in July and 129·8 in August 1955 as a result of increased rents and home-ownership costs. The clothing index dropped to 108·4 from 108·6 in July but was above the 107·8 index for August 1955.

Gross National Product.—Canada's gross national product continued to increase during the second quarter of 1956. This latest advance brought the level to an annual rate of $29·5 billion compared with $28·6 billion in the first quarter of the year. About two-thirds of the gain was in the physical volume of production and the remaining one-third represented a rise in value.

The dominant features of the first half of 1956 were the very high levels of fixed capital investment expenditures currently undertaken by business, the high rate of business inventory accumulation, and the heavy current account deficit or import balance which averaged $1·2 billion at seasonally adjusted annual rates. Total final expenditures by all groups, plus investments in inventories, were running at an annual rate of $36·5 billion or about $4·3 billion above the rate for the corresponding period in 1955. Business investment in plant and equipment and in inventories accounted for nearly one-half of the total increase. About one-third of the total increase was met out of imports which alleviated the demand pressures exerted on Canadian production. The sharp advances in national expenditures were accompanied by some upward movement in prices in most of the components of gross national expenditure.

The latest gains in labor income increased the level of wage and salary payments to a point about 11 per cent above the level for the second quarter of 1955. This increase reflects a rise of about six per cent in the number of paid workers and five per cent in hourly average earnings. The gains of five per cent in the second over the first quarter of 1956 stem from an increase of three per cent in the main non-agricultural industries and two per cent in average hourly earnings. The gains in the second quarter were widespread but especially marked in construction and durable goods manufacturing. Agriculture, forestry, mining, public utilities, transportation, storage, communication, trade and the service industries were all higher in the second quarter.

Increase in labor income in the second quarter were accompanied by an accelerated rate of consumer spending. Personal expenditures on consumer goods and services rose by three per cent compared with two per cent in the first quarter, gains occurring in the durables, non-durables and services groups. This rising level of consumer expenditure was supported by a sharp increase of almost five per cent in disposable income, largely attributable to the marked increase in wage and salary payments. Since consumer expenditures rose less sharply than disposable income there was a substantial increase in the rate of savings from $1·4 billion in the first quarter to $1·8 billion in the second quarter.

Industrial Production.—The composite index of industrial production reached an all-time monthly peak in June, according to preliminary figures from the Dominion Bureau of Statistics. The index (1935-39=100) stood at 298·4 or

7·8 per cent above the 276·8 figure for June 1955. It averaged 276·7 for the first six months of the year, a rise of 7·7 per cent above the 256·9 average for the corresponding period of 1955.

Foreign Trade.—Canada's total exports rose to $430·3 million in July 1956 from $356·9 million in July 1955, as a result of sharp increases in wheat shipments, marked gains in iron ore, copper, petroleum and newsprint shipments, and smaller increases in many primary and manufactured products. The cumulative total for the January-July period was $2,734·5 million in 1956 and $2,420·2 million in 1955. Nearly half of the July increase was in shipments to the United States but there were also increases in shipments to the United Kingdom, other Commonwealth countries and other foreign countries. In the seven-month period over half of the increase was in sales to the United States and the remainder in sales to other Commonwealth and foreign countries; there was a slight decline in sales to the United Kingdom.

Commodity imports in July rose to about $484·5 million from $372·6 million in July 1955. The corresponding cumulative figures for the January-July period were $3,331·7 million and $2,582 million respectively. In July as well as in the seven-month period larger purchases were made from the United States, the United Kingdom and other Commonwealth and foreign countries.

The import balance in July 1956 is estimated at $54·2 million compared with $15·7 million in July 1955. The import balance for the January-July period increased sharply to $597·2 million from $161·8 million in 1955.

Employment.—Manpower resources continued to be fully occupied during August, according to a monthly joint news release by the Department of Labour and the Dominion Bureau of Statistics. There was little or no change in the already low level of unemployment; a slight increase in the labor force was absorbed by a corresponding increase in employment.

The number of persons with jobs at August 18 was estimated at 5,823,000 or 34,000 more than in July and 182,000 more than in August 1955. The number of persons without jobs and seeking work was 103,000 at mid-August compared with 102,000 in July and 131,000 in August 1955. Canada's labor force in August had grown to 5,926,000 from 5,891,000 a month earlier and 5,772,000 a year earlier.

The demand for farm workers was stronger than usual during August, employment on farms increasing by almost 50,000. Non-farm employment declined slightly, mainly as a result of a temporary shift of workers from logging and construction to agriculture to meet harvesting requirements.

Farm Income.—Cash income received by Canadian farmers from the sale of farm products and participation payments on previous years' grain crops totalled $1,188 million in the first six months of 1956, second only to the $1,241·7 million peak for the first half of the year in 1951. The 1956 January-June total was 13·1 per cent above the January-June 1955 estimate $1,050·3 million and the $1,073·6 million estimate for the corresponding period in 1954.

Increases occurred in all provinces except Prince Edward Island and Ontario and ranged from slightly under two per cent in Nova Scotia to a little over 50 per cent in Saskatchewan. Important contributions to the gains in farm cash income as compared with 1955 came from increased returns from the sale of grains, poultry, eggs and dairy products, and larger wheat participation payments. Supplementary payments made under the provisions of the Prairie Farm Assistance Act to farmers in western Canada amounted to $3·9 million during the first six months of 1956 compared with $31·5 million for the same period in 1955.

CANADIAN PUREBRED CATTLE IN THE LATIN AMERICAN MARKET[1]

G. J. DOBSON

Livestock plays an important role in the economy of Latin America, providing essential foods for local consumption and forming an important source of export earnings in a number of nations. Meat accounts for one-fifth of the value of Latin America's farm output, and total exports of livestock and livestock products bring in almost ten per cent of the area's export earnings. As part of a growing interest in improved nutrition dairy production has been increasing, particularly near the larger cities. For the most part low productivity has held back expansion, though almost all the Republics have the potential to increase considerably both meat and milk production.

A number of the Latin American governments have sponsored programs to increase the output of livestock products. These programs include disease control, herd improvement schemes, setting up artificial insemination centers and improved marketing facilities. In addition a major aspect of these programs of interest to Canada in recent years has been that of improving the cattle population by importing purebred stock. As shown in the accompanying table over 8,300 purebred cattle from Canada were sold in this market in the last ten years. Exports have varied year by year with a low of 151 animals in 1952 and a high of nearly 2,400 in 1955. A new high export total will be reached in 1956, with about 3,500 animals already sold to Latin America in the six months ending June 30. Practically all of Canada's sales have been dairy animals, mainly Holstein-Friesians. Though large numbers of purebred beef animals are imported, the demand is for types not common to Canada, such as Brahmans and Santa Gertrudis, which are more suitable to tropical climates. There is some possibility of an increasing interest in Aberdeen Angus from Canada, particularly in Argentina.

Canadian Exports of Purebred Cattle to Latin America, 1945-1955

Country	Number	Value
Argentina	292	499,932
Brazil	94	112,279
Chile	220	197,469
Colombia	1,028	725,942
Costa Rica	11	9,825
Cuba	246	108,532
Dominican Republic	217	73,498
Ecuador	271	130,967
El Salvador	14	9,600
Guatemala	4	5,237
Mexico	2,179	1,091,816
Panama	34	9,116
Peru	605	268,052
Puerto Rico	734	270,681
Uruguay	157	168,879
Venezuela	2,257	960,197
	8,363	4,642,022

SOURCE: Department of Trade and Commerce, *Foreign Trade*, June 9, 1956, p. 3.

Under these import programs control over quality is exercised by the government of the importing country. A government department or agency may act as the importer and then resell the cattle to individual breeders, often on long term credit. Trade Commissioners report that the demand is mainly for good quality moderately-priced animals though there is a smaller demand for higher-priced show-ring cattle. The details vary to some extent for each country and in the following pages a brief report of the market in eight of the main importing countries is presented.

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[1] Prepared from reports by the Canadian Trade Commissioners in the countries considered. More detailed country reports appeared in the Department of Trade and Commerce publication *Foreign Trade*, June 9, 1956.

Argentina—Though Argentina is a noted beef producing country, during the last 15 years interest in dairy breeds, mainly Friesian types, has grown rapidly. In 1955 more than half the total imports of over 600 head were dairy breeds. Among the beef breeds, the Aberdeen Angus is growing in popularity and almost one-fifth of the imports were of this breed.

From 1953 to 1955 inclusive, Argentina imported 650 Friesian-type cattle. Of these, 45 bulls and 74 females are reported to have come from Canada, 47 bulls and 66 females from the United States, and most of the remainder from the Netherlands.

Imports of purebred cattle are subject to strict regulation. Each year an import quota of foreign exchange is allotted for this purpose but before an import permit will be issued a certificate confirming the necessity of the import must be obtained from the Ministry of Agriculture and Livestock. The Ministry will only issue a certificate if the animals meet required specifications in regard to breed type, extended pedigree, production history and proof of fertility. Final entry of the animals depends on their passing visual inspection by an import committee.

In recent years, cattle imports have been effected at a rate of exchange of 7½ pesos per U.S. dollar. Since October 1955, however, the import rate has been 18 pesos per U.S. dollar. This has tended to discourage imports but it is not yet possible to determine whether this attitude of the importers to the new rate is permanent.

The present government is dedicated to the revival of Argentina's agriculture and will probably support the import of high-quality animals for the herd improvement programs. Thus, after a period of adjustment during which internal prices of livestock and products are expected to increase, the market should again absorb large numbers of purebred cattle imports. The higher exchange rate may result in a larger percentage of bulls being imported. The major export opportunities for Canada will probably be in the Holstein-Friesian breed, with most competition coming from the Netherlands and the United States. The outlook for beef cattle sales is less promising. The prospects are best for Aberdeen Angus, where Canadian breeders may be able to supply a bigger and more rugged type than British breeders have been able to produce, though the latter have been the main source of beef animals to date.

Colombia—Colombian importers have looked to Canada for top-quality Holstein-Friesians and exports have consisted almost entirely of this breed. In addition to top-quality stock there is also a demand for good quality animals to use as foundation stock. The climate of the country varies from tropical to temperate, depending on the altitude. There is considerable grazing land but in the lower tropical areas local diseases and insects present problems. In these areas both dairy and beef animals are crossed with Brahman cattle (Cebus) to provide a more adaptable type.

The year 1955 was a record one for the export of Canadian purebred cattle to Colombia when 592 head valued at $373,253 were sold compared with 60 head valued at $60,208 in 1954. However, in March of this year imports of all cattle were moved from Group 1 category which were paid for at the official rate of exchange of 2·50 pesos to the dollar, to Group 2 Special. This latter group must be paid for at the free rate, now about 4·50 pesos to the dollar.

This of course means that exchange to cover imports of cattle will now cost nearly twice as much as it did previously. As in the past, all imports of cattle require an import permit and the prior approval of the Ministry of Agriculture and the import surtax of ten per cent still applies.

It seems likely that the new exchange regulations will curtail cattle imports in 1956. Some breeders who want certain top-quality animals are in a position to pay the higher cost, but importers of good-quality animals for foundation stock will probably be unable to meet the prices.

Cuba—Meat production and dairying constitute, in combined value of products, Cuba's second largest agricultural industry. Cattlemen have been gradually improving their herds and the use of purebred imports is increasing. Estimates of imports in the last two years show that 1,667 beef animals were imported in 1955 compared with 406 in 1954. For dairy cattle the figures were 3,668 and 1,765. In general Cuban cattlemen prefer a moderately-priced animal that will give satisfactory service rather than top-quality show animals. Purebred imports are largely limited to Brahmans, Holstein-Friesians and Brown Swiss, although some Charollais, Shorthorns, Aberdeen Angus, Santa Gertrudis, Jerseys and Guernseys are also imported.

As a disease precaution, imports from a long list of countries are prohibited. In practice, this leaves Canada and the United States as the only approved sources. The United States is by far the major supplier. In 1955, Canada shipped 31 purebred animals to Cuba worth $16,767. Although U.S. dominance of the market has been attributed to lower shipping costs, some cattle importers are inclined to attribute it to greater and more active U.S. interest and selling effort.

Dominican Republic—For some years the Dominican Republic has had a surplus of cattle of Brahman and mixed breeding and has exported cattle and beef to other Caribbean countries. In recent years the Government and cattle breeders have made concerted efforts to improve the quality of the cattle both for beef and dairy purposes. As a result, imports of purebred cattle for breeding purposes have been fairly substantial and have come mainly from the United States.

The breeds preferred are Holstein-Friesian, Brown Swiss, Jersey, Brahman and, to a lesser extent, Aberdeen Angus and Guernsey. Cross-breeding of the Aberdeen Angus and Brahman is currently being carried out successfully. Young cattle rather than mature ones are recommended for shipment to the Dominican Republic owing to their greater resistance to tick infection.

Only small numbers of cattle have been imported from Canada in past years. There is, however, a substantial potential market for Canadian purebred cattle, particularly Holstein-Friesian, Jersey and Ayrshire. Guernsey and Aberdeen Angus are also of interest to specialized breeders. The preference is for rather good cattle at reasonable prices rather than highly priced animals. The only competition comes from the United States, whose exporters are at present quoting attractive prices.

Mexico—For the last four years Mexico has been a fluctuating market for purebred Canadian cattle. In 1952 sales amounted to $50,700 but during 1955 they reached a value of $198,106 and a further increase is expected in 1956.

At the end of 1955 the Mexican Government initiated a program of rebuilding its dairy herds which were seriously reduced by the epidemic of foot-and-mouth disease. It is expected that a large share of the government purchases will be made in Canada. At the present time the interest is in heavy milk production so the most popular breed is the Holstein-Friesian, which makes up 90 per cent of the imports. The Ayrshire follows with seven per cent and the Jersey with three per cent. The Government is interested in importing only registered cattle with good records of production. A small market for show cattle exists among the more wealthy cattlemen.

The Mexican Department of Agriculture had budgeted for a large amount of money to be used for cattle imports. Representatives of the Department supervise these purchases in foreign countries and the farmers receive a three-year credit after an initial down payment of approximately $100 per head. The original money will serve as a revolving credit over the ten to 15 years the program is expected to continue. The Government also has 27 artificial insemination centers in operation and 80 per cent of the bulls used are Canadian.

The main competition in the Mexican market will come from the United States. Although Canadian cattle are regarded as more hardy, United States cattle are considered to be better producers in the short run. Transportation costs and a slight differential in exchange also favor the United States. But Canada is already well established as a source of supply and if Canadian exporters handle this trade with care, they should continue to enjoy a large share of this lucrative market.

Peru—Peru does not produce enough meat and milk for its own needs and is, and will continue to be, a large importer of dairy cattle, cattle for herd improvement and for slaughtering, and milk products. Breeders have not placed particular emphasis on beef cattle for breeding, possibly because of price controls on meat, which reduce the margin of possible profit. The Government is, however, encouraging an increase in milk production and the improvement of dairy herds.

Through its Agricultural Development Bank the Government is providing low-cost loans to individual farmers to assist them in farm and plant improvements and to help them purchase high-pedigree stock. The Bank also handles bulk imports of high quality cattle which are sold to individual herd owners. The dairy farmers want particularly to increase production so the interest centers in breeds which are high volume milk producers. Nearly 80 per cent of the cattle at the Annual Livestock Show were Holstein-Friesians.

Late in 1955 two shiploads of high-quality purebred Holstein-Friesians arrived from Canada. The 583 head, principally heifers in calf, were very well received and the placing of further orders in Canada is being considered. Live cattle are admitted duty free but must meet rigid health requirements and be fully documented. Transportation charges from Canada to Peru are high. This tends to give Argentina, particularly, a price advantage which can only be offset by the high quality of Canadian Holstein-Friesians. Should the market soften, or the breeders turn to non-pedigree stock it will be extremely difficult for Canadian cattle exporters to meet the competition.

Puerto Rico—The Department of Agriculture and Commerce in Puerto Rico has for some years been developing and improving the cattle industry of the country, and private breeders have been importing Canadian purebred cattle. The Holstein-Friesian is preferred and some buyers have stated that the Canadian type is really the only one which interests breeders for dairy purposes. Canadian exports of purebred cattle to Puerto Rico have risen from 27 in 1953 to 217 in 1955. The import of purebred beef cattle is not too important as beef supplies for consumption are obtained from the United States and the Dominican Republic.

Cattle shipments are subject to health and other import regulations. The main competition is from U.S. suppliers who in some cases have certain advantages, particularly in transportation. The market demand is for moderately-priced animals for breeding and milk production rather than for higher-priced cattle. Exporters of Canadian Holstein-Friesians should be able to maintain substantial sales if Puerto Rican import regulations do not discriminate against them.

Venezuela—The Government of Venezuela has had a program under way for some time to make the country self-sufficient in dairy products. In recent years imports of powdered milk and other dairy products have amounted to approximately $35 million a year.

One of the features of the program is the granting of low cost loans to farmers for the import of quality breeding stock. In 1955 Venezuela imported 5,399 head of purebred cattle and over 60 per cent were beef breeds suitable to tropical conditions, such as Brahmans and Santa Gertrudis. The interest in Canadian cattle centers in Holstein-Friesians and to some extent Brown Swiss and Jerseys. Canadian exporters supplied 403 head of purebred dairy cattle in 1955, valued at $165,009. As a result of the good quality of the cattle exported to Venezuela, farmers there have shown a willingness to pay premium prices for Canadian animals.

Purebred cattle enter Venezuela duty-free and although import licenses are required, these are freely granted. There are no exchange restrictions. Canada's main competition comes from United States exporters who generally have a considerable freight advantage. Also, as a result of better publicity and personal contacts by U.S. exporters, American cattle are better known. The main interest is in purebreds with a record of good milk production, though some show animals have been purchased. Imports may increase in the future if the Government follows its intentions to increase sharply the funds made available for low-cost loans. The Trade Commissioner reports that more publicity by Canadian cattle exporters is desirable, but over the long run the most important thing that can be done to maximize sales possibilities is to continue the reputation for delivering only high-quality cattle.

FARMS ON HEAVY TEXTURED SOILS ON THE PARK AREA OF NORTHEASTERN SASKATCHEWAN

J. K. WIENS

An important decision on farm practices concerns the type of rotation to follow and the kind of crops to grow. Crop rotations are becoming an important consideration in agricultural production in the Prairie Provinces. This is particularly true in the park areas of the "prairies" where production is relatively more intensive than in other areas. This increased importance of rotations has not resulted in the adoption of any one specific rotation by all farms within any given area. The rotations followed are varied.

To evaluate some of these rotations a study was conducted in 1954 on loam soils in the park area of southeastern Saskatchewan. In 1955, a similar study was done on heavy textured soils in the park area of northeastern Saskatchewan. A preliminary survey was made for the 1955 study on crop rotations to determine the size of farms in the area, the extent and purpose of forage crops grown, cattle numbers and other information relating to farm organization. A sample of farms was chosen from each of the predominant rotations used in the area and for three size groups to be used for a more detailed survey.

Ownership and occupancy data were collected for 17 full townships and six half townships in northeastern Saskatchewan. The area includes the nine full townships in R. M. of Connaught No. 457; six and one-half townships in R. M.

of Tisdale No. 427; one and one-half townships in R. M. of Star City No. 428; and three townships in R. M. of Nipawin No. 487. There were 969 farm units in the area.[1]

The model farm size is one-half section of land. Over three-quarters of the farms are three quarter sections or less in size. Nine per cent of the farms were fully rented and 62 per cent were fully owned. The predominant group of farms is the fully-owned half section unit. (Table 1).

Ownership and occupancy data were obtained for the entire area but the sample included only every other quarter section farm, every third half-section farm, and every section farm.

The soils in the survey area were of the Tisdale, Weirdale, and Arborfield Association. The Soil Survey of Saskatchewan[2] has classified the soil associations and arranged them according to their general suitability for agriculture. Soils with higher numerical indexes may be considered as the more productive, especially with regard to suitability for grain growing. The soils in the survey area are nearly all classed as good soils with a rating from 61 to 75.

Table 1.—Size Distribution and Tenure of Farms on Heavy Textured Soils, Twenty Townships, Park Area of Northeastern Saskatchewan, 1955

Farm size in quarter section	Fully owned	Partly owned Partly rented	Rented	Total	Per cent of total
	number	number	number	number	
1	197	—	17	214	22
2	224	71	33	328	34
3	93	82	17	192	20
4	48	45	8	101	10
5	16	32	9	57	6
6	12	30	1	43	4
7	4	11	—	15	2
8 and over	12	7	—	19	2
Total	**606**	**278**	**85**	**969**	
Per cent of total	**62**	**29**	**9**		**100**

The municipal assessment for most quarters ranged from $2,000 to $4,000 per quarter section. There was no significant difference as to size of farm according to assessment or soil classification. The average cultivated acreage was 86 per cent of the total acreage farmed.

Rotations—The last few years have been abnormal with respect to spring weather and rainfall. Seeding has been delayed because of lateness of spring and flooding of individual fields. Thus, fields that were dry enough to work were seeded and those that did not dry out in time were summerfallowed. As a result certain fields were summerfallowed two years in a row and others were cropped several years in a row. This did not agree with the rotational practices that the farmer was trying to adhere to and thus rotational practices have been unduly disturbed in recent years.

The area is also one of fairly intensive cropping practices including the growing of registered seeds and some specialty crops. Weeds have been a serious problem in the area. Soil fertility and structure have been diminishing in part of the area and to help to correct this situation clover, mainly sweet clover, is being grown on many fields. These three factors are partially responsible for a fairly flexible type of rotation. For example, a three-year rotation of summerfallow-wheat-coarse grains may be modified on many farms by growing two or three crops before summerfallowing or seeding part of a field to clover and leaving the other in summerfallow.

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[1] For our purposes a farm unit includes the land area operated as a unit according to management and use of machinery.

[2] Mitchell, J., H. C. Moss and J. S. Clayton. *Saskatchewan Soil Survey Report No. 13, 1950.*

The main rotations followed by the 333 farmers interviewed were as follows: 21 per cent cropped individual fields every other year, 67 per cent cropped fields two years in a row before summerfallowing, four per cent cropped fields three years in a row before summerfallowing, five per cent followed a special rotation which may or may not include permanent forage and three per cent followed no definite rotation.

All subsequent analysis is made on the basis of the quarter, half and one section farms interviewed. A breakdown of the sample farms by rotation and size is given in Table 2.

A larger percentage of the smaller than of the larger farms followed a more intensive rotation. Ten per cent of the quarter section farms were farmed on a four-year rotation (summerfallowed individual fields every fourth year only) whereas no section farms were farmed in this way. Only 15 per cent of the quarter section farms were farmed on a two-year (summerfallow-grain) rotation compared with 24 per cent of the section farms. Thus smaller farms tended to follow a more intensive cropping rotation than larger farms in order to have a larger acreage in crops.

Table 2.—Classification of Rotations According to Size of Farm, Tisdale-Arborfield Area, Northeastern Saskatchewan, 1955

—	Quarter section		Half section		One section	
	Number of farms	Per cent	Number of farms	Per cent	Number of farms	Per cent
Two-year rotation	14	15	22	19	20	25
Three-year rotation	66	70	83	72	53	65
Four-year rotation	9	10	5	4	—	—
Special rotations	4	4	5	4	5	6
No definite rotation	1	1	1	1	3	4
Total	**94**	**100**	**116**	**100**	**81**	**100**

Land Use—As much as 86 per cent of the farm area is improved. Wheat is the predominant summerfallow crop. As a normal rotational practice 73 per cent of the quarter section farms, 68 per cent of the half section farms and 48 per cent of the one section farms had all the summerfallow seeded to wheat. Twenty-two per cent of the quarter section farms, 25 per cent of the half section and 45 per cent of the one section farms seeded wheat on summerfallow but also seeded part of their summerfallow acreage to another crop. Other crops included rye, rape, flax, barley, oats and sweet or red clover. Thus, in all, over 93 per cent of the farmers seeded at least some summerfallow wheat. Coarse grains were the most important grain crops grown on stubble land. Of the farmers seeding stubble crops, 63 46, and 18 per cent of each of the respective size groups seeded only coarse grains on stubble. Another 20, 44, and 50 per cent, respectively, seeded coarse grains and clover on stubble fields. Other stubble crops or combination of crops, in order of importance were clover, wheat and coarse grains, wheat, grain with clover, wheat with clover, and grains.

Most of the perennial forage fields in the area were less than 20 acres in size and were usually located next to the farmstead and thus not intended to be taken back into a grain rotation (Table 3). In all, 282 fields were used for perennial forage or hay; of these 111 were alfalfa with a grass mixture (mainly brome grass), 77 brome grass, 14 alfalfa and 80 other grasses or other mixtures. In all there were 37 fields of perennial forage intended to be eventually used as part of a crop rotation.

Perennial forage crops were used only to a very limited extent for land improvement practices but clover[1] was widely used for land improvement. Eight per cent of the farmers usually seeded one to nine per cent of their land to clover annually, 12 per cent have from 10 to 19 per cent, five per cent have from 20 to 29 per cent, five per cent have from 30 to 39 per cent, and 17 per cent have a different amount from year to year. In all 47 per cent of all the farmers seeded clover. Arranged by size of farm these included 25 per cent of the quarter section farmers, 52 per cent of the half section farmers and 68 per cent of the section farmers. More of the larger farm units were using clover as a land improvement crop than smaller farm units.

Table 3.—Number of Farmers Growing Forage Crops by Acres in Hay or Pasture, Tisdale-Arborfield Area, Northeastern Saskatchewan, 1955

	Quarter section	Half section	One section
	—number of farms—		
Acres of forage for hay			
nil	53	46	23
1–19	35	56	32
20–39	4	13	21
40–59	2	1	2
60–79	—	—	2
80–99	—	—	1
	94	116	81
Acres of forage for pasture			
nil	63	76	39
1–19	28	32	24
20–39	2	7	13
40–59	1	1	3
60–79	—	—	1
80–99	—	—	1
	94	116	81

Clover is used in one of three ways. It can be used as a hay crop, plowed down for a green manure crop, or harvested as a seed crop. Very often the farmer chooses between a green manure and a seed crop. If the clover sets seed it will be harvested for seed but if it appears that the clover will not "set seed" then it is plowed down as a green manure crop. If the clover is plowed down as a green manure crop early enough in the season and then summerfallowed it can still be considered as a good summerfallow for the coming year. However, if the clover is left until seed setting time and then plowed down when it appears that the seed crop will be poor, the subsequent crop yield will probably be lower. Over half of the farmers seeding clover did not utilize the clover in the same way from year to year as a usual practice. Nineteen per

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[1] Mainly sweet clover, although some red clover and white Dutch clover are grown in the area.

Table 4.—Average Inventory of Stock by Size of Farm, Tisdale-Arbordfield Area, Northeastern Saskatchewan, 1955

	Quarter section farms	Half section farms	One section farms
Beef cows	0·3	1·5	2·9
Dairy cows	1·8	2·3	3·1
Other cattle	2·4	3·4	6·3
Number of cattle	4·5	7·2	12·3
Brood sows	0·5	1·2	1·4
Other hogs	3·1	11·1	11·6
Poultry	53·0	99·0	95·0

cent of those seeding clover used it as a green manure crop as a usual practice, 17 per cent harvested a seed crop, and seven per cent cut it for hay. The other 57 per cent did not have a set pattern of use.

Livestock Development—There were very few farms with large livestock enterprises. The average inventory by size of farm is shown in Table 4.

There were 18 farm units from all three size groups with more than five beef cows, 27 farm units with more than five dairy cows, 29 farm units with more than 10 head of other cattle, 20 farm units with more than three brood sows, 33 farm units with more than 20 hogs, and 126 farm units with more than 50 hens. Thus over half the farms had fairly small livestock enterprises. Livestock, particularly cattle, were more commonly found on the large size farms (Table 5).

Farm Occupancy—Of the 116 farmers farming a half section unit, 68 per cent had been on these farms less than 20 years, that is, they arrived on their present farms since 1936 (Table 6). The corresponding percentages for the farmers farming one section of land or a quarter section of land are 62 and 56, respectively. Thirty-four per cent of the farmers farming a quarter section of land had been on these farms from 20 to 29 years and another 20 per cent had been on their farms over 30 years.

Other Employment—The only size group of farms where a fair percentage of farmers had other employment aside from operating their farms was the group of farms with one quarter section of land. Twenty-five per cent of these farmers had other employment and 75 per cent of them were so employed for the full year. Of the quarter section farmers having farmed less than ten years, 42 per cent had other employment. It would appear that a quarter section farm is too small and these farmers are either adding other income to the farm income or using the farm income to augment their other income when opportunities exist for doing so.

Table 5.—Number and Percentage of Farms Having Different Classes of Livestock, Tisdale-Arborfield Area, Northeastern Saskatchewan, 1955

	Quarter section farms		Half section farms		One section farms	
	Number	Per cent	Number	Per cent	Number	Per cent
Beef cows	16	17	16	14	31	38
Dairy cows	51	54	78	67	66	81
Other cattle	53	56	72	62	61	75
Brood sows	32	34	60	52	40	49
Other hogs	37	39	71	61	55	68
Poultry	46	49	89	77	53	65

Table 6.—Length of Occupancy of Present Farms by Size of Farm, Tisdale-Arborfield Area, Northeastern Saskatchewan, 1955

Number of years on present farm	Quarter section		Half section		One section	
	Number of farms	Per cent	Number of farms	Per cent	Number of farms	Per cent
0– 9	24	26	52	45	25	31
10–19	19	20	27	23	25	31
20–29	32	34	18	16	18	22
30–39	16	17	9	8	8	10
40–49	3	3	7	6	5	6
50–59	—	—	3	2	—	—
Total	**94**	**100**	**116**	**100**	**81**	**100**

Outside employment has been a usual practice for some time in this area. The number seeking other temporary employment in the fall of 1955 increased because of the low crop yields which reduced their farm income.

Type of Management—More farmers obtained their livelihood from the land than a size distribution would indicate. Some units were run by more than one operator. For example, as many as 28 per cent of the one section farms were handled by more than one operator, four per cent of the quarter section farms and ten per cent of the half section farms were managed by more than one operator.

Custom Work—There was a slight but gradual decrease in the proportion of farmers not doing custom work as the size of farm incerased. That is, the larger the farm size, the more likely was the farm operator to do some custom work. These relationships were more pronounced for hired custom work. Fifty-one per cent of the quarter section farms usually hired some custom work done but only 15 per cent of the section farms did so. Combining was the most important and weed spraying the second most important type of machine operations done with custom work.

LIVESTOCK PRODUCTION IN WESTERN SASKATCHEWAN AND EASTERN ALBERTA

S. R. Burkell

Cattle, sheep, swine and horses are the four principal kinds of livestock raised in western Saskatchewan and eastern Alberta. There are many purebred herds of cattle but most of the herds are simply graded up by the use of a purebred sire. Cattle are raised for both milk and beef purposes. The beef type of animals generally produces a better quality carcass and a higher dressing percentage than the dairy type. Hereford, Shorthorn and Aberdeen Angus are the main breeds of beef cattle and Holstein, Ayrshire, Guernsey and Jersey the main breeds of dairy cattle.

Sheep may be divided into two groups according to fineness of wool and conformation of body. The hardy, fine wool type of sheep, chiefly of Rambouillet breeding, predominate in the range areas and the medium wool, mutton type, Down breeds and especially Hampshire and Suffolk, in the mixed farming areas.

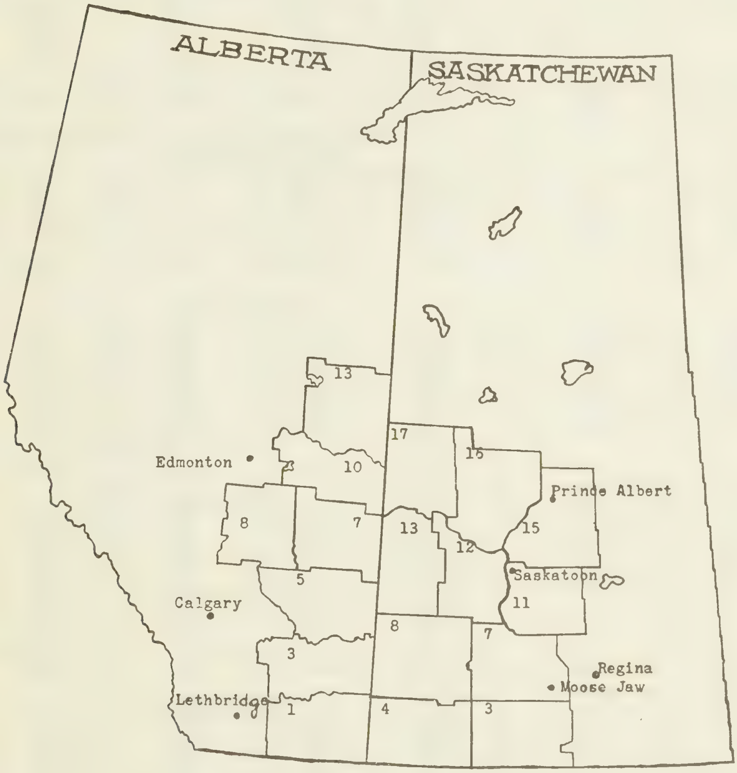
The Yorkshire type of bacon hog is now raised almost exclusively but in the past other British and American breeds of the lard as well as of the bacon type were also raised in this area.

The medium draught horse is the most common type of horse raised in the area. The main breeds are the Clydesdale, Percheron and Belgian.

Livestock Numbers—The average farm inventory of livestock, for the 1921-51 period, consisted of about 1·4 million head of cattle, 0·8 million horses, 0·8 million swine and 0·5 million sheep. A breakdown of cattle numbers according to the main purposes for which they were kept shows an average farm inventory of about 448,000 cows and heifers kept mainly for milk purposes and 423,000 mainly for beef purposes (Table 1).

MAP OF THE STUDY AREA

(figures relate to Census division numbers)



Except for sheep and horses these inventories are about equal to those for either Saskatchewan or Alberta and represent a large proportion of the totals for the Prairie Provinces and the whole of Canada—cattle, 40·3 per cent of the Prairie and 16·0 of the Canada total; milk and heifers, 34·9 and 10·9 per cent respectively; beef cows and heifers, 48·2 and 34·2 per cent; horses, 46·7 and 17·2 per cent; and sheep, 48·3 and 17·1 per cent respectively.

The regional distribution of livestock is described in Table 2. The four classes of livestock are scattered throughout the region but certain areas of greater concentration are readily discernible. Northeast Alberta

Table 1.—Livestock on Farms in Representative Areas, 1921-1951

Year	Study Area	Alberta	Saskatchewan	Prairie Provinces	Canada
			All Cattle (000's)		
1921	1,499	1,854	1,563	4,235	10,206
1926	1,256	1,169	1,160	2,939	8,571
1931	1,218	1,125	1,189	2,982	7,973
1936	1,632	1,554	1,535	3,836	8,840
1941	1,322	1,342	1,241	3,288	8,517
1946	1,574	1,598	1,499	3,897	9,665
1951	1,448	1,563	1,275	3,509	8,371
Average	1,422	1,458	1,352	3,527	8,878
			Cows and Heifers, 1 year and over, kept mainly for milk purposes (000's)		
1936 [a]	492	442	565	1,365	b
1941	497	467	573	1,430	4,480
1946	454	424	532	1,321	b
1951	347	359	401	1,045	3,758
Average	448	423	518	1,291	4,119
			Cows and Heifers, 1 year and over, kept mainly for beef purposes (000's)		
1936 [a]	490	500	375	999	b
1941	257	304	151	504	803
1946	411	459	307	880	b
1951	510	564	372	1,073	1,636
Average	417	457	301	864	1,220
			Sheep (000's)		
1921	350	431	195	739	3,200
1926	387	505	162	779	2,830
1931	627	786	281	1,284	3,267
1936	671	766	342	1,316	3,159
1941	580	675	330	1,251	2,840
1946	568	667	335	1,208	2,940
1951	256	331	136	532	1,479
Average	491	594	254	1,016	2,868
			Swine (000's)		
1921	457	423	420	1,043	3,324
1926	641	701	598	1,603	4,037
1931	993	1,052	949	2,391	4,700
1936	758	878	667	1,814	4,136
1941	1,271	1,706	944	3,153	6,081
1946	714	940	523	1,771	4,910
1951	701	931	533	1,802	4,916
Average	791	947	662	1,940	4,586
			Horses (000's)		
1921	1,111	806	1,078	2,240	3,452
1926	1,097	784	1,104	2,230	3,360
1931	987	732	997	2,054	3,114
1936	867	677	898	1,880	2,878
1941	778	649	801	1,752	2,789
1946	534	469	570	1,254	2,200
1951	274	261	304	696	1,307
Average	807	625	822	1,729	2,729

a Data not available for census years before 1936.

b Data not available since quinquennial census was not conducted for the whole of Canada.

Source: Census of Agriculture.

has the largest number and the highest average concentration of cattle, swine and horses and southeast Alberta has the largest number and highest average concentration of sheep. There is a marked variation in the distribution of

Table 2.—Number and Density of Livestock on Farms in the Study Area, 1921-1951.

Year	Southwest Saskatchewan		Southeast Alberta		West Central Saskatchewan		Northwest Saskatchewan		Northeast Alberta	
	Number		Number		Number		Number		Number	
	Total	Per sq. mile	Total	Per sq. mile	Total	Per sq. mile	Total	Per sq. mile	Total	Per sq. mile
					All cattle					
1921	268,533	8·4	185,463	8·4	203,994	10·8	217,759	11·7	568,790	20·7
1926	253,230	7·9	185,013	8·4	178,192	9·5	200,610	8·6	439,343	16·0
1931	244,797	7·7	200,626	9·1	181,792	9·6	218,382	9·4	372,238	13·5
1936	236,589	7·4	248,126	11·3	219,777	11·7	306,531	13·2	546,601	20·0
1941	248,753	7·8	194,958	8·9	166,415	8·8	255,411	11·0	469,665	17·1
1946	325,061	10·2	230,646	10·5	187,642	10·0	267,718	11·5	549,254	20·0
1951	283,444	8·9	247,979	11·3	163,750	8·7	254,282	11·0	510,814	18·6
Average	265,772	8·3	213,258	9·7	185,937	9·9	253,527	10·9	493,815	18·0
	Cows and Heifers, 1 year and over, kept mainly for Milk Purposes.									
1936 [a]	79,924	2·5	35·862	1·6	81,655	4·3	119·453	5·1	175,296	6·4
1941	81,181	2·5	36,811	1·7	78,626	4·2	116,944	5·0	183,876	6·7
1946	71,778	2·2	30,559	1·4	68,901	3,7	117,783	5·1	165,149	6·0
1951	45,628	1·4	22,767	1·0	49,217	2·6	92,121	4·0	137,136	5·0
Average	69,628	2·2	31,547	1·4	69,600	3·7	111,576	4·8	165,364	6·0
	Cow and Heifers, 1 year and over, kept mainly for Beef Purposes.									
1936 [a]	105,366	3·3	106,019	4·8	52,629	2·8	69,831	3·0	155,755	5,7
1941	58,372	1·8	69,556	3·2	17,315	0·9	24,169	1·0	87,149	3·2
1946	104,443	3·3	92·671	4·2	35,192	1·9	41,420	1·8	138,874	5·1
1951	123,159	3·8	119,700	5·4	49,231	2·6	53,262	2·3	164,893	6·0
Average	97,835	3·1	96,987	4·4	38,591	2·1	47,170	2·0	137,239	5·0
					Sheep					
1921	72,713	2·3	159,670	7·3	26,028	1·4	24,043	1·1	67,575	2·5
1926	64,036	2·0	216,551	9·8	26,000	1·4	16,742	0·7	63,447	2·3
1931	113,298	3·5	341,446	15·5	40,897	2·2	34,681	1·5	97,135	3·5
1936	139,205	4·4	335,362	15·2	42,602	2·3	42,480	1·8	110,924	4·0
1941	139,367	4·4	273,679	12·4	29,565	1·6	43,828	1·9	93,585	3·4
1946	141,318	4·4	260,327	11·8	27,347	1·5	53,319	2·3	89,084	3·2
1951	65,235	2·0	115,625	5·2	8·415	0·4	23,121	1·0	43,591	1·6
Average	95,705	3·0	243,237	11·0	28,692	1·5	34,031	1·5	80,763	2·9
					Swine					
1921	80,276	2·5	37,584	1·7	84,676	4·5	79,281	3·4	174,867	6·4
1926	88,075	2·8	43,991	2·0	125,528	6,7	112,589	4,9	270,844	9·9
1931	137,122	4·3	72,057	3·3	200,048	10·6	216,730	9·3	366,691	13·3
1936	92,845	2·9	45,611	2·1	102,058	5·4	184,944	8·0	332,000	12·1
1941	125,281	3·9	81,466	3·7	159,688	8·5	272,528	11·7	631,645	23·0
1946	60,219	1·9	39,968	1·8	81,083	4·3	167,490	7·2	364,790	13·3
1951	50,163	1·6	47,537	2·2	76,670	4·1	169,210	7·3	357,438	13·0
Average	90,569	2·8	52,602	2·4	118,536	6·3	171,824	7·4	356,896	13·0
					Horses					
1921	324,654	10·2	193,783	8·8	196,610	10·5	131,691	5·7	264,070	9·6
1926	326,637	10·2	156,995	7·1	207,701	11·0	142,169	6·1	263,634	9·6
1931	262,259	8·2	144,908	6·6	183,197	9·7	146,970	6·3	249,327	9·1
1936	193,832	6·1	101,826	4·6	154,441	8·2	166,355	7·2	250,775	9·1
1941	149,223	4·7	88,231	4·0	132,929	7·1	158,887	6·8	249,138	9·1
1946	93,235	2·9	55,291	2·5	80,827	4·2	121,590	5·2	183,530	6·7
1951	45,404	1·4	26,287	1·2	37,025	2·0	65,836	2·8	99,617	3·6
Average	199,320	6·2	109,617	5·0	141,815	7·5	133,357	5·7	222,870	8·1

cows and heifers kept mainly for milk purposes and those kept mainly for beef purposes. In southwest Saskatchewan and southeast Alberta most of the cows and heifers are kept mainly for beef purposes but in the other three northern districts a large proportion of the cows and heifers are kept mainly for milk purposes. About 70 per cent of the total sheep population is found in the two southern districts. Swine production is more important in the three northern districts and particularly in northeastern Alberta than in the two southern districts. Horse numbers are also somewhat higher in the northern districts.

Tables 1 and 2 illustrate the trends in livestock numbers. Cattle and swine numbers have remained fairly stable during the 1921-51 period. In the latter part of this period, however, there have been some changes in the relative numbers of cows and heifers kept for milk and those kept for beef purposes. Since 1941 the number of milk cows and heifers decreased while the number of beef cows and heifers increased. This trend is more pronounced in the study area and the Prairie Provinces than for Canada as a whole.

Swine numbers are now at about the same level as during the 1930's. The peak in swine numbers occurred during the early war years. Similar trends in swine numbers were noted in other parts of Canada.

Sheep and horse numbers were less stable. Sheep numbers declined sharply in recent years, the sheep population in 1951 being only half what it was in 1946. A decline in the sheep population also occurred in other parts of Canada and the United States during the same period. The trend towards a smaller horse population began in the early 1920's and is associated with an increase in farm mechanization.

During the 1921-51 period there has been a general decrease in total livestock inventories. The decrease in horse[1] and sheep numbers was not offset by large enough increases in cattle and swine numbers. In terms of animal units the total livestock inventory decreased from about 2·8 million animal units in 1921 to about 1·9 million animal units in 1951[2].

A comparison of 1951 with 1921 inventories of animal units indicates a decrease of about 74 per cent in horse numbers and about 30 per cent in sheep numbers. Cattle increased about three per cent and swine 39 per cent. While the total livestock inventory declined about one-third the productive livestock inventory (cattle, sheep and swine) was about the same in 1951 as in 1921. The trend towards the marketing of cattle at younger ages may conceal the improvement in the productive livestock inventory in terms of animal units.

The changes in productive livestock numbers followed the characteristic cyclical movements. In general the timing of the upswings and downswings in livestock numbers was similar for all parts of the study area even if there was some variation between districts in the magnitude of the swings, a variation which was mainly associated with the variability in feed production. By comparison with other parts of Canada the study area and the remainder of the Prairie region exhibited more fluctuations in livestock numbers than Eastern Canada and British Columbia. Changes in total numbers of different kinds of livestock in Canada were mainly a reflection of the changes which occurred in the Prairie Provinces.

The peak in cattle numbers occurred in 1946 in the study area and in 1921 in Alberta, Saskatchewan, the Prairie Provinces as a group and Canada as a whole. In the study area and in other parts of Canada 1951 was the peak year

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[1] The decline in the horse population was due, of course, to the substitution of tractors for horses for power purposes. Moreover, the Horse Co-operative Marketing Association, now the Canadian Co-operative Processors Limited, has encouraged the removal of horses from areas where pasture lands were urgently needed for meat animals.

[2] Livestock numbers were converted into animal units as follows:

Cattle	
—under 1 year	0·3 A.U.'s
—from 1-2 years	0·7 " "
—cows 2 years and over	1·25 " "
—steers 2 years and over	1·25 " "
—bulls 1 year and over	1·00 " "
Horses	
—under 1 year	0·4 " "
—from 1-2 years	1·0 " "
—2 years and over	1·25 " "
—stallions	1·00 " "

Swine	
—under 6 months	0·25
—boars 6 months	0·50
—sows 6 months	0·60
—other hogs 6 months	0·60
Sheep	
—lambs	0·15
—other sheep	0·25

Table 3.—Number of Farms Reporting Livestock, 1951

——	Southwest Sask.	Southeast Alta.	West Central Sask.	Northwest Sask.	Northeast Alta.	Study Area
CATTLE						
Total number	14,149	6,166	11,226	17,748	24,039	73,328
Per cent of Occupied farms	63·9	74·7	70·2	79·9	86·2	75·7
Average per farm reporting	20·0	40·2	14·6	14·3	21·2	19·8
COWS AND HEIFERS KEPT FOR MILK						
Total number	11,608	4,802	10,000	16,533	21,854	64,797
Per cent of farms reporting cattle	82·0	77·9	89·1	93·2	90·9	88·4
Average per farm reporting	3·9	4·7	4·9	5·6	6·3	5·4
COWS AND HEIFERS KEPT FOR BEEF						
Total number	8,012	4,314	5,069	5,300	10,808	33,503
Per cent of farms reporting cattle	56·6	70·0	45·2	24·2	45·0	45·7
Average per farm reporting	15·4	27·7	9·7	12·3	15·3	15·2
SHEEP						
Total number	555	479	333	1,349	1,719	4,434
Per cent of occupied farms	2·5	5·8	2·1	6,1	6·2	4·6
Average per farm reporting	117·5	241·4	25·3	17·1	25·4	57·7
SWINE						
Total number	8,082	3,623	7,417	13,677	18,436	51,235
Per cent of occupied farms	36·3	43·9	46·4	61·5	66·1	53·0
Average per farm reporting	6·2	13·1	10·3	12·4	19·4	13·4
HORSES						
Total number	12,107	5,009	10,274	17,513	22,692	67,595
Per cent of occupied farms	54·3	60·7	64·3	78·8	81·3	69·9
Average per farm reporting	3·8	5·3	3·6	3·8	4·4	4·1

a Data not available for census years before 1936.

for beef cows and heifers and 1941 the peak year for milk cows and heifers. In most parts of Canada sheep numbers reached a peak in 1936 and swine numbers in 1941. The lowest cattle numbers during the 1921-51 period were recorded during the late 1920's and 1930's. Swine numbers reached their lowest point in the early 1920's and sheep and horse numbers in 1951.

SOME REASONS FOR THE PERSISTENCE OF SMALL FARMS

Helen C. Abell

In various parts of Canada there are farms which are generally considered to have too small an acreage and too small a volume of business to constitute an economic unit capable of providing an adequate level of living for the farm family. Nevertheless such farms have been in operation for many years and seem quite likely to continue to exist. There must be valid reasons, both social and economic, which explain why these farms persist.

Empirical data collected during a socio-economic study of 107 "small"[1] farms in two mixed farming areas of Manitoba in 1954 provide some insight into the conditions and attitudes associated with the continued operation of this type of farm.

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[1] According to the 1951 Census, the average acreage per farm was 279 acres for Canada and 338 acres for Manitoba. The average acreages for the Steinbach and Beausėjour areas in Manitoba were 239 and 322 respectively. For the purposes of this study only farms with 200 acres or less were defined as "small" by the Economics Division and the Department of Agricultural Economics of the University of Manitoba under whose joint auspices this study was undertaken. Personal interviews were held with 56 farmers in the Steinbach and 51 farmers in the Beauséjour areas of Manitoba during the Summer of 1954.

Present Size, Time of Acquiring Property and Satisfaction With Size of Farm—These small farms ranged in size from 30 to 200 acres, 90 per cent of them being 160 acres or less. The area in improved land averaged 86 acres per farm—most of the farm operators (81 per cent) said that they considered these farms to be small in size. However 18 per cent said that their farms were medium and one felt that he had a large farm.

Although none of the farm operators acquired any parcel of their farm land before 1907, there is a longer history and persistence of small holdings in the Beausejour than in the Steinbach area. In Beausejour, among farmers operating very small farms of 120 acres or less at the time of the study, 60 per cent had acquired their first parcel of land between 1907 and 1938 and 40 per cent had done so between 1939 and 1954. The comparative figures for Steinbach are ten per cent in the first and 90 per cent in the second period. In each rural area, half the farmers operating 121 to 200 acres at the time of the study had acquired their first parcel of land between 1907 and 1938, and the other half had acquired it after 1938.

Almost half of the farmers (43 per cent in Steinbach and 49 per cent in Beausejour) said that they were satisfied with the present size of their farms. Those who were not satisfied had different ambition levels. Most of those farming on 80 acres or less said they would like to have a quarter section farm (160 acres). The ideal of most of those who had quarter section farms was to acquire a half section. Dissatisfaction with the present size of farm was most noticeable in the Steinbach area and particularly so among the farmers who had acquired their first parcel of land after World War II.

Farm Value, Volume of Business and Immobility of the Farm Operators—In 1953, the year preceding the study, about half (51 per cent) of the 107 farmers visited, secured less than $1,500 from farm operations, 26 per cent obtained from $1,500 to $2,499 and the other 23 per cent $2,500 or more. The two areas did not differ significantly in the proportion of farmers at each of these three income levels[1].

Farmers' estimates of the value of their farms ranged from $700 to $26,500 and averaged $6,315 per farm. One-third of the 107 farms were valued at less than $5,000, 37 per cent at from $5,000 to $7,000 and the remaining 30 per cent at from $7,001 to $26,500. A larger proportion (40 per cent) of the farms were valued at less than $5,000 in the Steinbach than in the Beausejour area (20 per cent).

As might be expected farms of low value generally had the lowest farm cash incomes. Of the farms valued at $7,000 or less nine in ten had a farm cash income of $2,499 or less; of those valued at over $7,000 five in ten reported a farm cash income of $2,500 or more.

Most of the operators (89 per cent) owned their own farms. A few (six per cent) owned part of the land they farmed and rented another part. Only two per cent rented their farms. None of these small farms employed hired labor. Farming operations were handled by the farmers with some help from wives and children.

The average age of farmers in both areas was 49 years, the youngest being 28 and the oldest 83. Almost half (47 per cent) were between 45 and 59 at the time of the study; 39 per cent were younger and 14 per cent older.

In spite of the small acreage of their farms, the low receipts from farm operations and the fact that few of the men could be considered old, none of the Steinbach farm operators and only three of those in Beausejour planned to abandon farming for a different occupation. A few said they would like to leave but had no definite plans. The overwhelming majority (91 per cent in Steinbach and 81 per cent in Beauséjour) said they had no intention of leaving for another occupation.

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[1] According to the 1951 Census, one-half of the Canadian farms defined as "commercial" sold less than $2,500 worth of produce in the preceding year. For the province of Saskatchewan the Royal Commission on Agricultural and Rural Life has stated that this income level ($2,500 or less) is too low to provide an adequate level of living for a farm family.

Family Composition and Some Parental Attitudes—The number of persons living on each farm at the time of the study averaged about seven in Steinbach and a little over three in Beauséjour. The two areas were significantly different in this respect[1].

Of the 107 farmers interviewed 91 were fathers (52 of the 56 men in Steinbach and 39 of the 51 in Beauséjour). A total of 216 children had been born to the Steinbach farm families and 124 to those in Beauséjour.

In both rural areas all children of 15 years or younger were living at home and very few of those between the ages of 16 to 20 had left. Among those at successively older age categories (21 to 24 years and 25 or older) an increasingly large proportion of the children, particularly the girls, had left their homes. Sixty per cent of all the farmers who had children living at home said that these children assisted with farm work. Most of this work took the form of two to four hours daily helping with farm chores. In many cases it took the form of a number of full days of work throughout the busiest seasons.

The relatively large supply of unpaid family labor on these small farms suggests an inefficient use or underemployment of available labor, particularly on the few farms where one or more adult male children were living.

Considering the 179 children aged 16 or older, there was a ratio of one male living at home to two away from home in both rural areas. These ratios were much larger for girls and particularly so in Beauséjour. In Steinbach there was one girl at home for each three who had left whereas in Beauséjour there was only one girl living at home to ten living away from home; in this same area there was not one girl of 21 years of age or older living on the home farm. These ratios assume a particular importance when questions of marriage, adult education programs and general community activities are raised.

Parental attitudes toward farming as an occupation for their sons and towards their daughters marrying farmers as well as attitudes regarding the amount of education necessary for a man to be a successful farmer may help to explain the findings already described.

Sixty per cent of all the farm operators with sons said they wanted their boys to be farmers (72 per cent of the fathers in Steinbach and 40 per cent of those in Beauséjour). Twenty per cent of the men did not want their sons to be farmers. Only nine per cent expressed this feeling in Steinbach but as many as 40 per cent felt this way in Beauséjour. The remaining 20 per cent, in both areas, said they did not care whether or not their sons became farmers.

Realizing that a large majority of the Steinbach fathers did want their sons to become farmers, it is noteworthy that of the 107 farm operators interviewed in the study seven in ten in the Steinbach area as compared with only three in ten in the Beauséjour area said that they thought that eight or fewer grades of schooling was all that was necessary for a man to be a successful farmer.

The influence of these parental attitudes towards education is clearly shown by the fact that among families with children aged 15 or older, nine or more grades of schooling had been completed by one or more of the children in only 30 per cent of the Steinbach homes as compared with 65 per cent of those in Beauséjour.

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[1] One to four persons were living on 20 per cent of the Steinbach and on 78 per cent of the Beauséjour farms at the time of the study; five to seven persons were living on 44 per cent of the Steinbach and on 22 per cent of the Beauséjour farms; eight to fourteen persons were living on 36 per cent of the Steinbach and on none of the Beauséjour farms. These differences are partly accounted for by the fact that 11 of the 51 farmers who were interviewed in the Beauséjour area were bachelors (most of whom lived alone); only two bachelors were interviewed in the Steinbach area.

Among the farm operators who had daughters 50 per cent of those in Steinbach and 40 per cent in Beauséjour said that the daughter should make her own choice of husband regardless of his occupation. However a desire to have their daughters marry farmers was expressed by 40 per cent of the Steinbach fathers and by 20 per cent of those in Beauséjour. Only ten per cent of the Steinbach fathers as compared with 40 per cent of those in Beauséjour said they would strongly object to seeing their daughters marry farmers.

Ethnic Origin, Language and Religion—The fathers of most (80 per cent) of the farm operators had been born in either Russia, Poland, Austria or another Central European country where nearly all had either operated or worked on small farms.

In the Steinbach area 26 per cent, and in Beauséjour 49 per cent of the farm operators were not Canadian born.

Although English was understood in the homes of all the farm operators[1], it was the only language spoken in only two per cent of the homes in the Steinbach area and in 39 per cent of those in Beauséjour. German and/or Dutch was also spoken in 80 per cent of the Steinbach and 18 per cent of the Beauséjour homes; Ukranian in 18 per cent of the Steinbach and 27 per cent of the Beauséjour homes. None of the Steinbach families spoke Polish or Bohemian but 16 per cent in Beauséjour did so. The children in practically all the Steinbach homes (98 per cent) and in a majority of those in Beauséjour (60 per cent) also spoke one or more languages other than English.

Religious affiliation in the two areas differed considerably. Seventy-two per cent of the Steinbach people were Mennonites as compared with only two per cent in Beauséjour. Almost the same proportions (14 per cent in Steinbach and 16 per cent in Beauséjour) were Greek Catholics. There were no Roman Catholics in Steinbach whereas in Beauséjour Roman Catholics made up 37 per cent of the population. Nine per cent in Steinbach and 22 per cent in Beauséjour were Lutherans. The remaining five per cent in Steinbach and 23 per cent in Beauséjour either had other affiliations or did not state their religion.

Intra-Family Transference of Small Farms—There is no doubt about the past and future transference of small farms from one generation to another within many of the same families in the two study areas. Forty per cent of the present farm operators got their farms either from their fathers or fathers-in-law. An even greater proportion, 60 per cent, plan to pass their present farm on to a member of the family.

In all likelihood these farms will still be fairly small when taken over by the next generation. There are several reasons for this, one being the fact that almost half of the farm operators said they were satisfied with the present size of their farms. Another important reason is the farmers' attitude toward credit.

Eighty per cent of all the men said that they would be able to borrow money (for one or all of five needs which had been specified), if they so desired; about ten per cent of the Steinbach farmers, as contrasted with none in Beauséjour, said either that they did not know if they would be able to borrow money to enlarge their farms or farm businesses or had never tried to do so.

As most of these farmers said that credit is available to them, and about half expressed a desire for larger farms, it is interesting to note that a majority (64 per cent in Steinbach and 59 per cent in Beauséjour) said that they hesitate to enlarge their farms or farm businesses because they dislike or fear credit for various reasons; about 20 per cent said that they were "satisfied" with the farm as it was and another 20 per cent said that they would not hesitate to use credit for these particular purposes, but only three men had made definite plans to take such action.

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[1] **All interviews were conducted in English.**

The data from this study do not supply information as to whether or not the children share their fathers' fear and dislike of credit. However it is quite probable that if the children do share these attitudes the effect will be shown in the size and operation of these small farms in the future.

The Level of Living, and Some Associated Values—The level of living for each family was determined objectively by the presence or absence of 27 different material items and possessions in the home. Included are such things as the type of house construction, number of rooms per person in the house, lighting system, certain furnishings, type of floor and wall finish and presence of newspapers and magazines. The greater the number of items the greater the level of living score[1]. This particular level of living scale was developed by Florence Edwards in Western Canada.

In this study the average score was 15·8 which is slightly below average scores obtained in previous studies in other parts of Western Canada[2].

As might be expected those farmers with the highest level of living score also had the highest cash farm incomes. These also were the farmers who had adopted the greatest number out of nine recommended farm practices. These particular relationships between high income, high level of living score and a high adoption of recommended farming practices have been noted previously in studies carried out by rural sociologists and others in both the United States and in Canada.

However, objectively measuring a farm family's level of living does not necessarily provide information on that family's satisfaction with its level of living. When asked how satisfied they were and their reasons for feeling this way, 60 per cent of the Steinbach farmers and 40 per cent of those in Beauséjour said that they were either satisfied or very satisfied; 20 per cent in Steinbach and 30 per cent in Beausėjour said they were fairly satisfied. The others (20 per cent in Steinbach and 30 per cent in Beausėjour) said that they were dissatisfied.

Some insight into the values held by the operators of these small farms comes from an examination of the reasons given for feeling as they did about their level of living. Awareness of a lack of material success was the outstanding reason given for feelings of dissatisfaction by farmers in both rural areas. Satisfactions had quite different bases. In Steinbach over half of those who felt very satisfied or satisfied gave personal or social reasons (such as friendships, religious or family bonds) and half of those who were fairly satisfied felt this way even though they recognized that they had not experienced economic success. In Beausėjour almost 60 per cent of those who felt very satisfied or satisfied and over 40 per cent of those who felt fairly satisfied said that they had experienced some measure of material success. One half of those who were fairly satisfied were resigned to their circumstances or felt that they "had enough to get along with".

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[1] The Steinbach and Beausėjour areas differed significantly in that Steinbach had a greater proportion of farm families in both the lowest and highest score groupings. For purposes of comparison in this study 0-14 is considered low, 15-18 medium and 19-27 high. The highest individual score in the study areas was 24. Of all 107 farms 31 per cent had a low score (39 per cent in Steinbach and 22 per cent in Beausėjour), 42 per cent medium (29 per cent in Steinbach, and 56 per cent in Beausėjour) and 27 per cent high (32 per cent in Steinbach and 22 per cent in Beausėjour.)

[2] See: Edwards, Florence, M., *"Farm Family Living In the Prairie Provinces"*, Pub. 787, Tech. Bull., 57, 1947; MacNaughton, Margaret A. and Jean Mann, *"Changes in Farm Family Living in Three Areas of the Prairie Provinces from 1942-43 to 1947"*. Pub. 815, Tech. Bull. 69, 1949; MacNaughton, Margaret A., Jean M. Mann and M. B. Blackwood. *"Farm Family Living in Southeastern Saskatchewan, 1947-48,"* Abell, Helen C., *"Alberta Farm Operators and the Level of Living Concept 1952"*. Report No. 2, Ottawa, Oct. 1952. All publications of the Economics Division.

Community Attitudes—Strong family and interpersonal ties in both areas were evidenced by answers to the questions "Do you prefer living in this community to any other?" and, "What are your main reasons for this answer?"[1]

The majority (86 per cent in Steinbach and 73 per cent in Beausėjour) said they preferred living in their own community rather than in any other. The reasons most often given (60 per cent) for this preference were couched in phrases like "I know everybody" or "These are my people". Lack of knowledge of other communities was the reason given by ten per cent of the farmers in Steinbach and by twice as many in Beausėjour. Convenient location of schools and churches or a feeling that they were in a good farming district were reasons given by ten per cent of the men in Steinbach and 20 per cent of those in Beausėjour. "My own religious group lives here" was the reason given by 20 per cent of the men in the Steinbach area.

Some farmers (nine per cent in Steinbach and 20 per cent in Beausėjour) said they did not prefer living in their present community to living elsewhere. The chief reason for this was a desire to live in or nearer to a city. Too cold weather, too great a distance from married children and lack of opportunity to move elsewhere were other reasons given.

Very few men (five per cent of those in Steinbach and six per cent of those in Beausėjour) were indifferent about the community in which they preferred to live.

Conclusions—This brief description of some of the conditions and attitudes prevailing on a selected group of small farms in two areas of Manitoba provides a background (even though far from complete) for understanding some of the reasons for the continued existence of this type of farm.

Four reasons seem to be of particular significance:

1. Many of the operators of small farms said that they were satisfied with their present way of life. This satisfaction has social rather than economic foundations.
2. Many operators of small farms had not adopted recommended farming practices which could increase their income.
3. Many operators of small farms were opposed to their sons obtaining sufficient education which either could open alternative employment opportunities to them or enable them to become more skilled farmers.
4. Many operators of small farms were reluctant to take advantage of available credit facilities to expand their farms.

These small farms seem to epitomize the "way of life" aspects of farming. This study points to the need for adjustments (both social and economic) which will enable families on small farms to maintain and raise their farming efficiency and their level of living while enjoying a way of life which is in accord with their particular complex of values.

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[1] When each farmer was asked to describe in miles the area he considered to be his "own community", the average figure given was five to six miles. This perception of the size of a farmer's community as about five miles was also found to be held by farm operators who were interviewed in 1952 in two mixed farming areas of Central Alberta.

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J. F. BOOTH, Chief

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ANNUAL AND MONTHLY INDEX NUMBERS

Wholesale Prices, Farm Prices and Living Cost Indexes

Year and Month	General Wholesale Price	Wholesale Prices of Canadian Farm Products[a]			Farm Prices of Agricultural Products[b]	Prices of Commodities and Services used by Farmers		Consumer Price		Industrial Production
		Total[b]	Field[b]	Animal		Composite[c]	Equipment and Materials[d]	Total	Food	
	1935–39=100							1949=100		1935–39=100
1913..........	83·4	....	....	....	....	....	85·4	49·2	44·4	....
1914..........	85·4	....	....	....	....	85·3	90·2	49·6	46·0	....
1915..........	91·8	....	....	....	....	91·6	96·9	50·3	46·8	....
1916..........	109·8	....	....	....	....	100·5	101·7	54·2	51·8	....
1917..........	148·9	....	....	....	....	140·5	140·7	63·7	66·9	....
1918..........	166·0	....	....	....	....	160·2	164·1	72·0	76·9	....
1919..........	174·7	....	....	....	....	167·9	169·1	78·8	82·2	....
1920..........	203·2	....	....	....	....	186·5	190·1	90·5	94·4	....
1921..........	143·4	....	....	....	....	152·5	147·4	80·9	72·5	....
1922..........	126·8	....	....	....	....	134·1	124·6	74·9	61·5	....
1923..........	127·7	....	....	....	....	130·6	118·3	75·2	61·9	....
1924..........	129·5	....	....	....	....	131·9	122·3	74·0	60·7	....
1925..........	133·8	....	....	....	....	131·8	123·2	74·6	63·4	....
1926..........	130·3	144·4	158·5	130·2	....	130·6	119·9	75·9	66·6	....
1927..........	127·3	138·6	149·4	127·8	....	131·2	119·9	74·6	65·3	....
1928..........	125·6	136·3	134·3	138·2	....	129·3	118·3	75·0	65·6	....
1929..........	124·6	140·8	137·2	144·4	....	127·9	117·6	75·8	67·1	....
1930..........	112·9	119·5	105·8	133·3	....	117·0	105·6	75·3	65·6	....
1931..........	94·0	78·9	65·0	92·7	....	100·9	92·2	67·9	51·4	....
1932..........	86·9	65·5	60·4	70·5	....	93·3	89·3	61·7	42·8	....
1933..........	87·4	69·3	69·3	69·2	....	89·8	88·8	58·8	42·3	....
1934..........	93·4	83·5	80·5	86·5	....	95·5	96·8	59·6	46·2	....
1935..........	94·4	89·2	84·4	94·1	88·0	95·4	95·6	59·9	47·2	85·6
1936..........	96·8	97·9	102·2	93·7	96·9	98·1	98·7	61·1	48·8	94·6
1937..........	107·7	117·4	128·9	106·0	119·7	105·3	108·4	63·0	51·4	108·0
1938..........	102·0	102·9	100·9	104·8	105·0	101·7	101·2	63·7	51·7	102·0
1939..........	99·2	92·6	83·7	101·5	91·8	99·3	95·7	63·2	50·2	109·7
1940..........	108·0	96·1	85·4	106·7	96·8	106·8	101·8	65·7	52·6	131·4
1941..........	116·4	106·6	88·9	124·4	110·2	116·1	107·8	69·6	57·9	164·8
1942..........	123·0	127·1	109·7	144·6	133·1	131·6	119·2	72·9	63·4	195·7
1943..........	127·9	145·4	129·0	161·8	157·8	143·4	122·4	74·2	65·2	208·5
1944..........	130·6	155·3	144·5	166·1	172·4	148·0	126·0	74·6	65·5	212·4
1945..........	132·1	166·4	162·5	170·2	185·7	152·1	125·9	75·0	66·3	187·2
1946..........	138·9	179·5	177·9	181·2	204·1	157·0	128·0	77·5	70·0	171·9
1947..........	163·3	192·2	184·1	200·2	215·8	170·4	139·5	84·8	79·5	187·8
1948..........	193·4	232·1	200·6	263·7	255·8	197·6	173·1	97·0	97·5	196·3
1949..........	198·3	228·7	191·9	265·4	255·4	204·1	180·3	100·0	100·0	199·6
1950..........	211·2	236·7	191·9	281·4	260·8	210·4	189·9	102·9	102·6	211·5
1951..........	240·2	268·6	200·4	336·9	296·8	230·0	206·0	113·7	117·0	226·5
1952..........	226·0	247·2	216·9	277·5	274·4	243·1	215·8	116·5	116·8	233·0
1953..........	220·7	221·6	179·4	263·8	250·4	239·8	207·4	115·5	112·6	248·4
1954..........	217·0	213·6	170·9	256·2	236·8	237·2	203·3	116·2	112·2	244·6
1955..........	....	209·7	....	245·1	228·5	....	....	116·4	112·1	265·8
1956										
Jan..........	222·0	196·7	158·4	235·0	217·0	234·8	206·0	116·8	111·5	275·5
Feb..........	222·2	195·9	159·5	232·3	217·2	....	....	116·4	109·9	274·2
Mar..........	223·3	197·5	164·0	231·1	218·1	....	....	116·4	109·1	278·3
April..........	224·5	200·4	168·7	232·0	219·7	249·0	209·6	116·6	109·7	278·9
May..........	225·3	207·7	177·5	238·0	224·2	....	....	116·6	109·3	278·3
June..........	226·5	217·2	182·6	251·7	232·2	....	....	117·8	112·5	286·4
July..........	226·6	226·6	196·9	256·4	238·1	....	....	118·5	114·4	291·2
August.......	227·0	214·4	171·1	257·6	232·6	254·3	210·7	119·1	115·9	287·4
Sept..........	227·4	209·8	160·3	259·3	229·6	....	....	119·0	115·5	289·0
Oct..........	227·1	208·0	159·9	256·0	228·5	....	....	119·8	117·4	....
Nov..........	....	....	....	....	....	....	....	....	....	....
Dec..........	....	....	....	....	....	....	....	....	....	....

Source:—Dominion Bureau of Statistics, Ottawa.

(a) Prices at terminal markets.

(b) Subject to revision from August, 1955, to date for supplementary payments on grain.

(c) Exclusive of living costs. Includes farm implements, building materials, gasoline, oil, greases, feed, fertilizer, binder twine, seed, hardware, tax rates, interest rates and farm wage rates.

(d) Differs from composite index by exclusion of tax rates, interest rates, and farm wage rates.

THE ECONOMIC SITUATION—1956

Year-End Review[1].—During 1956 the Canadian economy achieved new peaks of production and employment. In the second quarter of the year the Gross National Product reached a seasonally adjusted annual rate of $29·5 billion; in the first half of the year the G.N.P. rose by more than ten per cent in value and beween six and seven per cent in physical volume, compared with the same period in 1955.

Demand strengthened in all sectors. Exports continued to rise. A greater volume of agricultural products was shipped abroad and at home a higher level of personal income assured the continuance of a strong consumer market. An unprecedented level of capital investment supplied a further stimulus to the economy. This greater over-all demand exerted pressures on productive resources. These pressures were alleviated to some extent by a sharply increased flow of imports but the strong demand for labor and materials resulted in a moderate upward movement in price levels.

Investment.—Capital investment was the principal factor of strength in 1956. The mid-year survey of investment intentions revealed planned outlays of $8 billion. If such a program were completed it would represent a 28 per cent increase over the $6·2 billion actually spent in 1955. Within the total, planned spending for new construction was at a rate 26 per cent above that for last year and planned outlays for machinery and equipment were 32 per cent greater. The demands of the export market as well as the need for greater facilities to meet domestic demands led to this upsurge in capital expenditure. The emphasis of this build-up was in the commodity producing industries, fuel and power, and transport and communications. The demand for more schools, hospitals, and other institutions also led to greater planned outlays but the increases in these fields were not expected to be as large as those which took place in the previous year. Expenditures for residential construction continued at a high level during the first half of the year and it looks as if the increase in housing expenditures will approximate the four per cent increase anticipated in the survey. The strength shown in the field was largely due to the very large carryover of uncompleted houses from 1955. The difficulty in obtaining mortgage funds and the scarcity of serviced land were limiting factors with regard to the number of housing starts in 1956. During the first half of the year actual investment outlay increased sharply but it is apparent that for the year as a whole the total will fall short of the over-all intentions. The main limiting factors were the supply of labor and materials, particularly so, in the non-residential construction sector of the program.

The first half of 1956 also saw a substantial increase in the rate of investment in business inventories. The increased business inventory holdings were fairly widespread by industry but were particularly pronounced in the durable goods manufacturing industries in the first quarter. This higher level of inventories was related to some extent to the expansion of business activity.

Foreign trade.—Exports continued to move upward. On a first-seven-months comparison merchandise exports were 13 per cent greater in value terms and ten per cent greater in volume. However, there was some change in the geographical distribution of Canadian exports. Exports to the United Kingdom showed a sharp increase in 1955 but in 1956 fell slightly below the 1955 level as a result of reduced shipments of such items as softwood lumber and base metals. On the other hand the United States continued to take almost 60 per cent of Canadian exports with increased purchases of newsprint, base metals and some non-metallic minerals, and greater exports to Germany and Japan more than offset the decline to the United Kingdom.

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[1] Based on a review of the domestic situation prepared by the Domestic Situation Committee of the 1956 Federal-Provincial Agricultural Conference.

Every commodity group shared in the over-all increase. Higher newsprint and wood pulp sales compensated for a decline in softwood lumber while in base metals the increased value of copper and nickel exports offset declines in aluminum, lead and zinc. However, the greatest absolute increase in exports took place in the agricultural products group, with the sharp rise in wheat exports to Europe more than balancing moderate declines in other major farm products. With regard to agricultural products the domestic market continues to absorb an increasing amount of total Canadian production.

The rapid expansion of the Canadian economy also led to an exceedingly sharp increase in merchandise imports. During the first seven months of 1956, imports rose 29 per cent over those of the same period in 1955, or almost 2½ times the increase in exports. Although three-quarters of these additional purchases came from the United States, there was also a significant increase in imports from the United Kingdom and other overseas countries. The influence of the 1956 capital investment program is very evident in the commodity structure of the higher level of merchandise imports. Purchases of primary iron and steel products, industrial machinery, chemicals and other basic industrial materials were much greater this year. On a five-months comparison, imports of rolling mill products were up 139 per cent, and pipes, tubes and fittings 177 per cent. Industrial machinery imports of all types increased 51 per cent in the first five months of this year compared with the first five months of 1955 and purchases of electrical apparatus and chemicals were greater by 18 and 25 per cent respectively. At the same time, increased consumer demands were apparent in greater import purchases of automobiles, textiles and agricultural products.

This greater volume of imports has alleviated some of the pressure on domestic resources, but it has also resulted in an appreciable increase in the deficit on merchandise trade. In the first six months of this year the over-all merchandise trade deficit was $547 million compared with $146 million at the end of six months in 1955. Over the same period the trade deficit with the United States rose from $420 million to $572 million. This trade deficit has been approximately balanced by the inflow of capital funds, with continuing firmness in the external value of the Canadian dollar and without any drawing down of gold and dollar reserves.

Income.—Increases in consumer income and consumer expenditure accompanied the step-up in economic activity. During the first six months of 1956 labor income was ten per cent higher than in the corresponding period of 1955, reflecting an increase both in the number of paid workers and in wage rates. Income from dividends and rents was also greater and higher agricultural income resulted from an increase in wheat deliveries and the general strengthening of agricultural prices. The net result of these income changes in the first half of this year was a level of personal income eight per cent above that of the first half of 1955.

Consumer expenditure.—This expansion in personal income was accompanied by an increase in consumer expenditure which in the first six months of this year was seven per cent greater than in the same period of 1955. All major groups of goods and services shared in this increase. Durable goods sales which had fallen off in the first quarter of the year, when automobile sales declined, recovered in the second quarter to the extent that on a half-yearly comparison consumer durable goods purchases were up 11 per cent.

With regard to non-durable goods, greater expenditure for food, tobacco, alcoholic beverages, and clothing accounted for most of the seven per cent increase in this group in the first half of 1956.

Consumer prices for services advanced at a faster rate than those of goods so that, in the first half of this year, almost half of the five per cent increase in expenditure on services was the result of higher prices.

Prices.—Although on a six-months comparison the increase in the general price level was moderate, this year witnessed some acceleration in price movement. During 1955 raw and industrial material prices moved steadily upward and continued to do so in 1956. In addition, the pace of wage rate increases quickened considerably during the first six months of this year.

Agricultural prices did not exert the same moderating influence as in 1955. Early in 1956 the prices of farm products moved upward and have since continued to strengthen.[1]

Production.—The general step-up in economic activity pushed the index of industrial production to a new peak. On a six-month comparison the total index of industrial production, after allowance for seasonal variation, was eight per cent greater than in 1955. As in 1955 the index of mining production led the advance, with a 16 per cent increase over last year. The effect of the capital build-up was very evident in manufacturing production where durable goods output was running ahead of non-durable output. Nevertheless, in the latter group all sectors increased their output. Food, lumber, newsprint and chemicals had significant production increases and the improvement in the clothing industry, in evidence in the latter half of 1955, continued into the current year.

Employment.—Further evidence expansion was found in the employment situation. The seasonal peak in unemployment was noticeably lower in the winter of 1955-56 than in previous years and came in February, a month earlier than usual. Since then the number of persons without jobs and seeking work declined steadily and by July totalled only 102,000 persons or 1·7 per cent of those in the labor force.

The increase in employment was shared by all the main regions and industries, and a definite scarcity of labor arose in the skilled and semi-skilled trades, particularly so with regard to construction.

Monetary and fiscal developments.—By providing increasing resistance to credit expansion monetary policy operated as a restraining influence on the growth of aggregate demand in 1956. In the first part of the year when loans were rising rapidly the chartered banks sold Government of Canada securities on a large scale. The rate of increase in bank loans has lessened considerably since June and chartered bank sales of securities have also declined.

With the strong demand for credit, market interest rates except for temporary interruptions, continued the rise which began in early 1955. The Bank Rate was increased from 2¾ per cent to three per cent on April 4 to 3¼ per cent on August 9 and 3½ per cent on October 18.

The U.S. dollar in relation to the Canadian dollar ranged between 99 31/32 and 97 15/32, the low point being reached in September. In the first nine months of 1956, the official holdings of gold and U.S. dollars rose by $2·7 million net. On November 1 the Bank of Canada announced that, until further notice, the bank rate will be at a fixed margin of ¼ of 1 per cent above the latest weekly average tender rate for 91-day Treasury Bills. This was another step in implementing the policy, announced in February 1955, designed to make the bank rate more flexible and responsive to changing conditions in the short-term money market.

There was a budgetary deficit of $33 million for the fiscal year ending March 31, 1956. The budget for the fiscal year ending March 31, 1957, which assumed a gross national production of $28 billion in the calendar year of 1956, provided for a budgetary surplus of $113 million. In fact, gross national product has been running at a rate well in excess of this figure. There were no important changes in tax rates.

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[1] As of date of writing, November 15, 1956.

Farm Income.—Information available about the middle of September indicates that farm cash income for the year 1956 will be above the 1955 level. This cash income includes returns from the sale of farm products, participation payments on previous years' western grain crops and supplementary payments made under the provisions of the Prairie Farm Assistance Act. Although the increase in farm cash income will likely be offset to some extent by increased operating expenses and smaller additions to inventories, estimated farm net income for 1956 will likely be somewhat above the 1955 level.

It is expected that the greatest distribution of increase in farm cash income in 1956 will be made by grains, particularly wheat. In almost all cases, marketings of grains are estimated well above the 1955 levels. Participating payments made on previous years' grain crops are already significantly higher than those made a year ago. In contrast, Prairie Farm Assistance payments for 1956 will likely be substantially below the record high amounts paid to farmers last year.

Total cash returns from the sale of livestock are expected to be somewhat higher in 1956 than in 1955. This increase may be entirely attributable to higher marketings of cattle and calves at prices averaging about the same as last year. While hog prices for 1956 may average about the same as in 1955, higher total marketings are in prospect. Little change is anticipated for sheep and lambs. Income from poultry meat and eggs is expected to be higher in 1956 than in 1955.

Changes, if any, in income from the sale of the remaining commodities considered in cash income estimates are not expected to vary to any extent from the 1955 levels with the possible exception of fruits, vegetables and tobacco. Adverse weather conditions seriously affected the over-all output of fruits and vegetables but this may be partially offset by higher prices. Tobacco production for 1956 is expected to be above the level of 1955.

Total farm operating expenses and depreciation charges are expected to be higher in 1956 than in 1955. Increases are estimated for nearly all the items used in farm business operations. The most significant increase may occur in the case of feeds. Backward pasture conditions early in the year, together with some losses of eastern grain through unfavorable harvesting weather are likely to result in total purchases of feeds for 1956 above those for 1955. Although farm wage rates rose in 1956, farmers' outlay for farm labor may be down as a result of a continuing decline in the hired farm labor force.

The build-up of farm stocks of grains continued during 1956 but at a much slower rate than in 1955. Livestock numbers at the end of the year are expected to be at about the same level as at the end of 1955 with the exception of hog numbers which may be lower. As a result, the value of change in year-end inventories in 1956 will be below that of 1955.

Farm production.—A preliminary estimate indicates an increase in Canada's index of farm production for 1956 as against 1955. An anticipated increase in the output of such things as grain, eggs, poultry meat, dairy products and tobacco will more than offset a reduced production of fruits, vegetables, potatoes and sugar beets.

Prices of commodities and services used by farmers.—Prices paid by farmers for commodities and services used in production and for living costs in 1956 were slightly more than two per cent above those of a year earlier. Higher prices were recorded for all items except feed and fertilizer.

FUNCTION AND ACTIVITIES OF THE ECONOMICS DIVISION

J. F. BOOTH

The Economics Division is primarily a research and service organization but is concerned with the administration of certain marketing legislation. The Division also engages in education and extension work to the extent necessary in making the results of research known to farmers and others.

The terms of reference established when the Division was formed in 1929 included the following fields of activity:—(1) farm management, (2) land economics, (3) agricultural credit, finance and taxation, (4) transportation, (5) marketing, (6) agricultural co-operation, (7) price and statistical analyses, (8) agricultural history and (9) rural sociology.

Over the years research on federal and provincial agricultural policies and on the agricultural policies and legislation of other countries has been added to the above; also research on domestic food consumption.

These various fields of activity are grouped under several headings, which also constitute the sections into which the Division is divided for administrative purposes. These are (1) Policies and Prices, (2) Production Economics, (3) Marketing.

For convenience and economy five provincial or regional offices are maintained. One of these located at the Agricultural College at Truro, Nova Scotia, serves all four Atlantic provinces.

Four offices in the West are located at Winnipeg, Saskatoon, Edmonton and Vancouver. The Winnipeg office occupies space in a provincial government building; the other three are accommodated at the provincial universities. The space occupied by the regional offices, with one minor exception, is provided by the province or university without charge.

At colleges and university centers the Division staff is either quartered with or very closely associated with the staff of the Economics Department of the university concerned.

Regional supervision of western activities is provided by an officer of the Division located at Edmonton.

Provincial contacts and the research program relating to Quebec and Ontario are handled from the Division headquarters in Ottawa.

Functions of an Economics Division Serving Agriculture

The functions of an economics division in a department of agriculture differ materially from those of an economics division in most other departments of government. An appreciation of these differences is necessary to the understanding of the work of agricultural economists and the responsibilities assumed by the Economics Division of the Department of Agriculture.

Much of the research in agricultural economics is done directly for farmers and for agencies engaged in the handling of farm products. For instance, the agricultural economist studies the business records and experiences of hundreds of farmers to provide these same farmers and others with answers to the practical problem of how to reduce costs and increase income. He studies and makes known the costs and processes involved in marketing farm products to assist in more efficient distribution, and to acquaint farmers and others with the services involved.

The farm economists, on this continent at least, came by this recognition of responsibility quite naturally. They found that they had, in a sense, fallen heir to a custom and pattern of procedure established by governments and by their co-workers in the natural sciences.

Governments on this continent had for many decades supported agricultural research, and research workers in the natural sciences had applied their knowledge and skill to the problems caused by insects, disease, weeds and the like. They had also, by experimentation and by demonstrations, sought ways of improving farm practices and reducing costs. These things were done for farmers and at the farm level. Farmers had thus come to think of the agricultural scientist, the district agriculturist and others as people working for them on their particular problems. When the agricultural economist appeared on the scene he found that he was expected to apply the tools of economic research in the same direct manner to the problems falling within his field.

Although this kind of research dominated the program of the Economics Division during its initial development, and still is an important activity, research having a somewhat different purpose is now of primary concern. This includes research in what might be called the semi-policy and policy fields. In some instances of course the purposes of research overlap. The studies of irrigation farming in western Canada serve the twofold purpose of helping irrigation farmers to meet some of their problems, and providing the Prairie Farm Rehabilitation Administration with information needed in the development and administration of irrigation projects. A study of potato production in New Brunswick or of apple marketing in Nova Scotia may be useful to farmers and to the industry in those provinces and at the same time provide information useful to the Agricultural Prices Support Board in determining whether a support program is needed and if so, what kind.

Concerning research and advisory services relating to government policies, divisions of economics have much in common. This field, already receiving consideration in the 1930's was greatly expanded when war speeded the adoption of government controls and governments in turn demanded more statistics and more economic research as a basis for policy making. Throughout the war and since the major part of the effort of the Economics Division has been devoted to research, and advisory and administrative duties associated with agricultural policies and programs.

Origin and the Basis of Program Development

Much of the program of the Economics Division is now based on requests originating with those concerned with departmental administration. This applies particularly to what might be termed "service" projects. The demand from the Minister's and Deputy Minister's offices, from Service Directors, the Agricultural Prices Support Board, the P.F.R.A. and other agencies for special surveys, the assembling of facts and figures, the preparation of memoranda relating to legislation and policies, domestic and foreign, is heavy and involves the effort of a considerable number of staff members.

A good deal of research originated in efforts of the Division staff to anticipate trends and possible developments on which information may be required in the future.

A substantial part is based on requests for information or assistance originating outside the Department. These come from farmers, farm organizations, colleges and universities, consumer groups, trade organizations, research bodies, and federal and provincial government departments.

Many requests can be dealt with by the use of data provided by the Dominion Bureau of Statistics, the Food and Agriculture Organization, the United Nations, the Commonwealth Economic Committee, and similar bodies. Many, on the other hand, suggest specific research projects and when the interest in such requests appears sufficient to warrant action, projects are included in the Division's program.

Purposes Served and Utilization of the Results of Research

The largest single user of the results of economic research is, undoubtedly, the Federal Department of Agriculture itself. In the development of policies, and in their administration, many questions arise that require economic or statistical analysis. The steadily increasing demand for such information suggests its usefulness. Senior officials devote much time to such activities. Members of staff keep abreast of legislation, policies in effect, trade developments and price trends in other countries that have application to Canadian conditions.

The Department is concerned with many matters of an interdepartmental intergovernmental and international nature. Use is made of information and of personnel supplied by the Economics Division in dealing with such matters.

At the level of the farm and the market place, economic research is intended to help reduce costs, raise incomes and enable Canadian producers to meet competition at home and abroad. The experimentalist on his plots and the scientist in his laboratory and pilot plant contribute to this end. So also does the farm economist who studies the operation of privately owned farms and individually or co-operatively owned business organizations. The several methods of study are not conflicting; nor do they duplicate one another.

Farm business studies provide farmers with information on the best combinations of land, labor and capital; on the probable results of various combinations of enterprises; on the effect of size of business, labor efficiency and increased mechanization; on the relation of various farm practices to income.

Such studies provide prospective farmers with information on types of farming in different parts of Canada, on capital requirements, costs of preparing land and establishing farms, and probable area required for profitable operations. A considerable number of requests for this type of information comes from prospective immigrant settlers. Agencies and departments of government concerned with immigration and settlement also require such information.

The purposes of marketing and consumer preference studies are many. Provincial governments, cities and market operators desire to remodel and expand outmoded facilities. Business firms, private and co-operative, wish to know comparative costs and ways to increase efficiency; provincial governments wish to know market area food requirements and sources of supply as a basis of production and marketing programs; farmers desire information on market requirements, sizes, grades, pack and prices; business firms want advice on the effect of new merchandizing practices, new methods of distribution and packaging, the effect of changing habits of living, the development of locker plants and home freezer units. Business firms complain that import dumping is ruining their business and ask that the matter be studied.

In the field of economic appraisal and forecasting there is a considerable demand for service. Farmers, farm organizations, business executives concerned with agriculture, co-operative leaders, bankers and others appear to want periodic appraisals of the agricultural situation and outlook. A good deal of time is spent on such activity.

Examples of Use.—It is not always possible to obtain definite evidence of the use made of economic research or of research in any field for that matter. People do not, as a rule, go to the trouble of informing the research worker of the results of his efforts. By various means it is possible, however, to learn something of the use made of economic research. The following samples may be of interest:

An official of the Division served for two years as an adviser of the Canadian Government in connection with Trail Smelter arbitration between the United States and Canada. He was able to show that during the period in question loss of income to U.S. farmers was due to economic causes and not to crop damage from smelter fumes. As a result Canada paid no indemnity to the United States for damage to crops.

The City of Toronto provides an annual market for about $40 million worth of fruits and vegetables which are consumed in the city and surrounding urban centers. The market is interprovincial and international in nature. The market facilities were 150 years old, outmoded, inadequate and badly located to serve present needs. Some years ago, a committee representative of the trade, the city and the province was formed to plan for new facilities. The committee found that it could not proceed without information on volume of business, sources of supply, types of agencies involved, costs, etc., and requested the Federal Economics Division to make an economic survey. That was done; a development program followed; modern terminal facilities were erected; the trade moved to the new center and has been operating successfully there for about two years.

Similar studies were subsequently made of the market in Montreal, and other Quebec cities. The Chief of the Marketing Division, Quebec Department of Agriculture, advises that the reports of these studies have "been extensively used as basic information" in improving marketing in his province.

The Province of British Columbia and the cities in deficit food production areas of the East and West Kootenays face problems arising from inadequate supplies and high prices. Studies of the situation were requested. The information was used to acquaint producers, consumers and the trade with the facts of the situation. A production program based on the survey findings was undertaken. The Deputy Minister of Agriculture for British Columbia has said that these studies have prevented costly mistakes in agricultural development.

An interwar study of the British market for Nova Scotia apples was used as a basis for the early second war assistance program to the apple industry. Several subsequent research studies of conditions in Nova Scotia and British Columbia were requested and the results used in later years.

A study of sugar beet production in Ontario requested by the Tariff Board assisted in determining tariff and excise policies.

The results of various research projects on land settlement and capital requirements were made available by the Postwar Rehabilitation Committee for use in the development of the Veterans Land Act. Capital needs indicated by the Division's research were not reflected in the original Veterans Land Act. The revised financial provisions were more in line with those suggested by research findings.

The Agricultural Situation and Outlook Reports, provided annually by the Division in co-operation with the Bureau of Statistics and other agencies, are used as a basis for discussion at the annual Federal-Provincial conference on agricultural production and marketing. The information is later used throughout the country in agricultural extension work.

Economic studies of river basin development, irrigation and marshland rehabilitation provide a basis for government consideration of possible undertakings in this field. The Director of P.F.R.A. states that no project is now undertaken without prior research by the Economics Division.

Land classification in Western Canada has provided the basis for land use programs, including decisions on what land to use in Community Pastures. The Saskatchewan Land Use Board is understood to have used land class ratings in its policy decisions.

A completely new and modern system of land assessment based on productivity has been developed in Saskatchewan and Manitoba. Soil survey and land classification data are essential to the new method. Division economists have participated in several training schools for land assessors.

"Agriculture Abroad", published bi-monthly by the Division, is used in Canada and in other countries as an authoritative source of information on legislation and policies in various countries. It has been noted that delegations to the FAO and the International Federation of Agricultural Producers rely on it. Canadian delegates have frequently been complimented on this publication. Numerous letters in the same vein are on file.

In the apple producing areas of British Columbia workers in fruit packing plants receive wages based in part on the income position of farmers. The rate is negotiated by an industry committee. The results of economic surveys made by the Division are used in arriving at wage rates.

CHANGES IN OWNERSHIP AND TENURE IN THE R.M. OF ST. ANDREWS NO. 287, BETWEEN 1944 AND 1954

J. ZEMAN

One of the principal characteristics of land is its immobility. To paraphrase Tennyson, "Men may come and men may go, but I go on forever". However, even if the location of a given parcel of land is permanent there may be continuous changes in its owners and operators.

The ownership of some lands is maintained in one and the same family. Other parcels of land are bought and sold very frequently. The proportion of the land acreage which is operated by tenants fluctuates from year to year. And, there is more vacant land in some years than in others.

To illustrate some of the changes in ownership and tenure which may take place, this article will describe the changes which occurred in one municipality, the R. M. of St. Andrews No. 287 in Saskatchewan during the 1944-54 period. This municipality was included in broader economic studies in 1944[1] and 1954[2]. A complete inventory was made of every quarter section in the municipality with respect to ownership and tenure in both years. The data were obtained from municipal officials and well informed people in the municipality. The predominant soil type is Regina heavy clay, a superior soil for the growing of wheat.

The ownership of the 1296 quarters in 1944 can be described as follows: 916 quarters were privately owned by individuals who resided in the locality; 63 quarters privately owned by people living in Saskatchewan but at a distance of more than 20 miles from the location of the quarter; 137 quarters privately owned by people living outside the province; 99 quarters were part of estates; 11 quarters were owned by the municipality; 29 quarters by the Crown; four quarters by the Hudson's Bay Company; one quarter by a railway company; 23 quarters by mortgage or investment companies; and 13 quarters were used for townsite purposes.

What was the tenure situation in 1944? Of the locally owned land, 712 quarters were farmed by the owners, 203 were rented out, and one was vacant. Of the land owned by private persons not living in the immediate vicinity, 62 quarters were rented out and one was vacant. Of the land privately owned by people living outside Saskatchewan, 133 quarters were rented out and four were vacant. Of the land that formed part of an estate, 96 quarters were rented out and three were vacant.

The following situation prevailed for the publicly owned land. Of the land owned by the municipality, two quarters were rented out and nine were vacant. Of the land owned by the Crown, 24 quarters were leased and five were vacant. The four quarters of Hudson's Bay Company land were vacant. The quarter owned by a railroad company was vacant. All of the land owned by mortgage or investment companies was occupied. The remaining 13 quarters in the municipality were townsite property.

Concerning the nature of the specific changes that had occurred by 1954 the changes that had taken place in the ownership and tenure pattern of the 712 quarters that had been privately owned and owner operated in 1944 will be dealt with first. Of these quarters, 305 were still owned and operated by the same persons. For 120 quarters that had been owner operated in 1944, there were new owner operators in 1954. These were cases where ownership of land was transferred to someone not related to the previous owner. For 57 quarters farmed by owner operators in 1944 there was a change to renters, and a change in ownership as well for 22 of these quarters.

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[1] Stutt, R. A., *An Economic Classification of Land in the Elrose-Rosetown-Conquest Area, 1944*. Economics Division, Canada Department of Agriculture. Processed Publication, 1948.

[2] This rural municipality was part of the 1954 survey area of the Economics Division's continuous project, *Changes in Farm Organization on Grain Farms of the Prairie Area of Saskatchewan.*

Some changes of ownership have taken place within the family. It is not completely apparent how this change has occurred in each specific case, whether through inheritance, gift or purchase. The transition has probably followed a definite pattern. In many cases the son, or new owner from within the family, has rented the land or been a party to some form of partnership. Owner operators of 88 quarters had changed within the family during the ten-year period. Owner operators of 61 quarters had not relinquished ownership but had turned over operation of the farm to some one in the family. In the case of 46 quarters there was a change to a father-son partnership by 1954. Owner operators of 35 quarters were dead by 1954 and their parcels had to be estate land.

There were 519 quarters of occupied land rented in 1944. Of this amount, 203 quarters were locally owned; 62 quarters were owned by persons not living locally, 133 quarters by persons living outside Saskatchewan; 96 quarters were estates; two quarters were municipally owned; and 23 quarters were owned by mortgage companies.

Of the privately owned land 494 quarters were rented out in 1944. Of this amount, 84 quarters were privately owned and operated under a family arrangement with 60 quarters locally owned, eight quarters owned by persons living out of the locality, and 16 by persons living outside Saskatchewan. In general, this land was operated by a member of the owner's family, with the owners supplying land, capital, labor and management in varying proportions. There had been no change for 38 of these quarters. For 35 quarters, the 1944 operator, operating under a family arrangement, was the owner operator in 1954. For the remaining 11 of these quarters in 1954, two quarters were owned by the previous family operator but were tenant operated; five quarters were owned by a new owner operator; and four quarters were an estate and family operated.

In 1944 there were 99 quarters which were estate land. Of these three were vacant, 52 were farmed by members of the deceased owner's families, and 44 quarters were rented to persons outside the family. Of the 99 quarters that were estates in 1944 settlement of the estate had been made in most cases by 1954. However, five quarters of land that were part of an estate and farmed within the family of the deceased owner were still under the same arrangement in 1954. Twelve quarters that were part of an estate and farmed by a tenant were still under the same arrangement in 1954. Thirty-five quarters had been inherited by the heirs of the deceased and were being farmed by them. Fifteen quarters were inherited by the heirs of the deceased and were being farmed by tenants. Thirty-two quarters were owned by people outside the family of the deceased owner and were either being farmed by the new owner, or a tenant.

Of the remaining 314 quarters of privately owned land which were farmed by renters in 1944, 149 quarters had been privately owned and rented out contindusly. Seventy-nine of these quarters had been owned by the same owners and farmed by the same renters continuously. For 26 quarters the renters had changed; for 10 quarters the owners had changed, and for 34 quarters there was a new owner and a new renter. New owner operators in 1954 were farming 82 quarters which had been privately owned and tenant operated in 1944. The 1944 tenants of 47 quarters of privately owned land were now owner operators of the property. Four quarters which were tenant operated in 1944 were farmed by the original owner in 1954. Finally, 32 quarters privately owned and owner operated were part of an estate in 1954.

The changes that had occurred on the publicly owned land will now be reviewed. In 1944, 29 quarters were owned by the Crown. Since then four quarters have changed to private ownership. One quarter has been transferred from the Saskatchewan Farm Loan Board. Thus the Crown presently owns 26 quarters of land. Five quarters of Crown land were vacant in 1944 and none in 1954. Seven quarters of Crown land were leased to the same lessee throughout. Thirteen quarters had different lessees in 1954 than in 1944; these thirteen quarters are presently being farmed under 33-year veteran leases.

The four quarters owned by the Hudson's Bay Company in 1944 were privately owned and owner operated in 1954. The one quarter owned by the Canadian Pacific Railway in 1944 was privately owned by a non-resident, and tenant operated in 1954. The 11 quarters owned by the municipality in 1944 were privately owned and owner operated in 1954. In 1944, there were 23 quarters owned by companies. In 1954, there was only one quarter so owned. A change to private ownership had occurred for 21 quarters while one quarter had been transferred to ownership by the Crown. Other publicly owned property consisted of 13 quarters which were used as townsite property.

As a result of the changes that took place during the ten-year period the number of quarters privately and locally owned had increased to 1007 and the number in all other categories had decreased with some types of ownership completely disappearing. The number of quarters under private ownership with owners residing in Saskatchewan more than 20 miles away was 57. People living outside Saskatchewan owned 104 quarters. Ownership of 88 quarters was in the form of estates. The municipality, the Hudson's Bay Company and the Railway Company had disposed of all their holdings. The Crown still owned 26 quarters. Only one quarter was owned by a mortgage company and 13 were still used for townsite purposes.

With respect to tenure, there was a significant increase in the amount of land operated by owners in 1954. Assessed owners were farming 830 of the 1256 privately owned quarters and renters were farming 426 quarters. Lessees were farming the 26 quarters of Crown land, and the one quarter owned by a mortgage company was being farmed. Thirteen quarters were still being used as townsites. There was no vacant land in 1954.

The changes which occurred during the ten-year period resulted in the following situation in 1954. There were 830 quarters privately owned and owner operated; of these, 305 had been operated by the same owners continuously. Another 120 quarters were privately owned and operated by different owners at the time of each survey. For 123 quarters there had been a change of owner operator within the family. Another family change had occurred for 47 quarters with the father taking his son into partnership. A total of 61 quarters which had been estate land in 1944 were farmed by owner operators in 1954. New owner operators were farming 82 quarters that had been privately owned but operated by a tenant in 1954. Persons who had been tenants of 47 quarters in 1944 were owner operators of these parcels in 1954. Four quarters which had been tenant operated in 1944 were farmed by the original owner in 1954. Six quarters which had been operated by a family member in 1944 had been sold to an owner operator from outside the family by 1954. Five quarters which had been privately owned and vacant in 1944 were owned by a new owner operator in 1954. Private owner operators had acquired four quarters from the Hudson's Bay Company, four quarters from the Crown, 11 quarters from the municipality, and 11 quarters from mortgage companies. This land had been tenant operated, leased, or vacant in 1944.

In 1954, 427 quarters were rented; 104 were rented to some one in the family. Of these 104 quarters, 38 had been rented in the family continuously during the ten-year period, 61 had been left by the previous owner operator to some one in the family, one had been previously operated by a tenant, and four which had previously been estates were rented out by the heirs to some one within the family.

In 1954 there were 88 quarters of land held as estates. Of these 17 had been estate land for the entire period, 35 had been privately owned and owner operated in 1944; 32 had previously been privately owned and tenant operated, and four privately owned and family operated.

The remaining 235 quarters of tenant operated land included 234 quarters of privately owned land and one quarter which was owned by a mortgage company. Of these quarters 149 had been under continuous private ownership and tenant operation and one under continuous company ownership and tenant operation. Previously, 57 quarters had been privately owned and owner operated; 16 which had been estate land in 1944 were owned by heirs and tenant operated in 1954; one had been privately owned and vacant; one had been owned by a railroad company and was vacant; and 11 quarters had been owned by a mortgage company.

Most of the arable land had been brought under cultivation by 1944. The face of the country did not change appreciably during the ten-year period. However, there were some new faces to be seen among the operators.

A NOTE ON TRADE AGREEMENTS BETWEEN THE SOVIET UNION AND SOME WESTERN COUNTRIES

E. Jaska

This report outlines 15 trade agreements that the Soviet Union has in effect with various western countries and which make provisions for the exchange of agricultural products. It should be recognized, of course, that in some cases the actual trade in commodities may differ in volume and value from that stated in the agreements. These agreements in general state the conditions under which transactions are to be carried out. These conditions of sale may vary from commodity to commodity.

The trade agreements concluded between the Soviet Union and the Western countries during the last year indicate that the U.S.S.R. has agreed to export the following agricultural products in 1956:

Wheat: to Austria, Denmark, Finland, India and the Netherlands;
Coarse grains: to Austria, Denmark and Norway;
Rice: to Yemen;
Textile fibres (cotton, flax): to Austria, Denmark, the Netherlands, Sweden and Yugoslavia;
Vegetable oils: to Finland, France, Iceland and Sweden; and
Sugar: to Yemen.

Under these agreements the Soviet Union has agreed to import:
Wheat: from Canada;
Rice: from Burma and India;
Meat: from Denmark and France;
Dairy products: from Denmark;
Fruits: from Afghanistan, Greece, the Netherlands and Syria;
Textile fibres: from Austria, Egypt, Pakistan, Sweden and Syria.

These 15 trade agreements may be summarized as follows:

A trade agreement, valid for one year, was concluded between ***Afghanistan and the Soviet Union*** in October 1955. The Soviet Union exports would include industrial products in return for wool, cotton, hides and skins, dried fruits and oilseeds from Afghanistan.

Austria and the Soviet Union concluded a $50 million trade agreement in September 1955. Under the trade agreement Austria agreed to export to the U.S.S.R. various machines and industrial products in return for Soviet grain and other foodstuffs.

Burma and the Soviet Union agreed in April 1956 to extend to five years their current three-year trade agreement. The Soviet Union agreed to import a total of 400,000 tons of rice annually from Burma in exchange for machinery, technical and other services.

A three-year agreement was signed between ***Canada and the Soviet Union*** at Ottawa on February 29, 1956. Under this agreement the Soviet Union agreed to buy between 1,200,000 and 1,500,000 tons (44 to 55 million bushels) of wheat during the three year period. Annual quantities would be between 400,000 and 500,000 tons (14·7 to 18·4 million bushels). Prices and terms of sale are to be those at which the Canadian Wheat Board is making sales to major customers at the times of the Soviet purchases.

Canada on the other hand did not make any commitments with respect to purchases of commodities, but agreed to accord to the U.S.S.R. her most favored nation rates of duty, i.e., the same rates as apply to imports from the U.S. and most other non-commonwealth countries.

In May 1956 a new trade agreement between ***Denmark and the Soviet Union*** was concluded for a period of two years, calling for Danish exports amounting to Dkr. 270 million ($Can. 38·3m.) and Soviet Union's exports amounting to Dkr. 290 million ($Can. 41·2m.). The Danish deliveries will include the following quantities of agricultural commodities: butter, 10,000 tons (22 million lb.); cheese, 2,000 tons (4·4 million lb.) and meat, 14,000 tons (30·9 million lb.). Deliveries from the Soviet Union are to include: wheat, 100,000 tons (3·7 million bu.); rye, 30,000 tons (1·2 million bu.) and coarse grains, 80,000 tons.

Egypt and the Soviet Union signed a £1 million ($Can. 2·8 million) barter-trade agreement in April 1956. The Soviet Union agreed to import from Egypt rice (60,000 tons) and cotton in return for oil and industrial products.

Although trade between ***Finland and the U.S.S.R.*** is governed by a five-year (1955-1960) agreement, negotiations are conducted each year to determine actual deliveries. On December 2, 1955, a protocol to the five-year agreement was signed in Moscow for 1956. According to this protocol, Finnish imports from the Soviet Union are to include the following agricultural commodities: wheat, 160,000 tons (5·8 million bu.); rye, 100,000 tons (3·9 million bu.); corn, 20,000 tons (787 thousand bu.); oats, 10,000 tons (648 thousand bu.); fodder cake, 45,000 tons; red clover seed, 40 tons; sugar, 85,000 tons; linseed oil, 2,000 tons; tobacco, 500 tons and starch, 100 tons.

France and the Soviet Union signed a new trade agreement for 1956 in March of this year covering mainly non-agricultural products. The only agricultural products involved are meat and cocoa beans. France has agreed to export cocoa beans and 5,000 tons (11·0 million lb.) of meat to the U.S.S.R.

By an exchange of notes between ***Lebanon and the Soviet Union***, the volume of Lebanese exports during the period 11 Sept. 1955-11 Sept. 1956 has been fixed at Leb. £10m. ($Can. 3·1m.). Apples, citrus fruits and other fruits will represent about 60 per cent of these exports. These exchanges will take place within the framework of the trade agreement signed on 30 April 1954.

In June 1956, the ***Netherlands*** signed a trade agreement with the ***Soviet Union*** covering the transactions between the two countries for 1956. Under the agreement the Netherlands would import wheat and a number of non-agricultural products. The Soviet Union agreed to buy vegetable and animal oils, and some non-farm products. The agreement does not include any meat, butter or cheese, all of which are staple Dutch exports.

According to the trade agreement signed between ***Norway and the Soviet Union*** the total value of trade in both directions in 1956 is estimated to be Nkr. 260m. ($Can. 35·7m.). Norwegian exports to the Soviet Union will include herring, frozen fish fillets and hardened fats. Soviet exports to Norway also include grain.

In June 1956 **Pakistan and the Soviet Union** signed a one-year trade agreement. The Soviet Union has agreed to import wool, hides, skins, leather and tea from Pakistan in exchange for various non-agricultural products.

A **Swedish-Soviet** trade agreement for 1956 was signed in Moscow in December 1955. The agreement provides for a substantial increase in trade between the two countries. Swedish imports from the Soviet Union will include the following products: oats, 5,000 tons (324 thousand bu.); barley, 5,000 tons (229 thousand bu.); oilcakes, 5,000 tons; cotton, 2,000 tons; and flax, 2,000 tons. Exports from Sweden to the Soviet Union include animals for breeding and 16,000 raw hides.

Under the trade agreement signed in November 1955 **Syria** will export to the **Soviet Union** cotton, oilseeds, vegetable oils, dried fruits, vegetables, tobacco, wool, hides and skins in exchange for machines and other industrial goods.

A trade agreement between **Yemen and the Soviet Union** was signed in March 1956, foreseeing increased reciprocal deliveries. Soviet Union will supply various industrial products, flour, rice and sugar in return for coffee, dried fruits, hides and skins.

There are of course a number of trade agreements between the U.S.S.R. and the countries within the same political orbit. In addition, the Soviet Union has concluded a one-year trade agreement with **Yugoslavia** for 1956. Yugoslavia's exports include: corn, 50,000 tons (1·9 million bu.); beans, 4,000 tons; meat, 9,000 tons (19·8 million lb.); tobacco, 3,000 tons; hemp, prunes and leather, while its imports from the Soviet Union will consist of cotton, oats and industrial products.

FROZEN FRUIT AND VEGETABLE PRODUCTION IN CANADA

D. W. Ware and L. E. Drayton

The production of frozen fruits and vegetables is a small but growing sector of our food processing industries. In 1940 the total quantity of frozen fruits and vegetables produced in Canada was seven million pounds, valued at the factory at $670,000. By 1954 the pack had risen to 46 million pounds valued at nine million dollars. Imports during 1955 totaled 20·3 million pounds valued at 3·5 million dollars.

Because of the rapid development of the frozen fruit and vegetable industry and its importance as a market for Canadian fruits and vegetables a study of its freezing and storage capacity was made in 1955. In a sense it is hardly a separate industry for almost every plant involved produces products other than frozen fruits and vegetables. Most of the packing takes place in canning plants and much of the actual freezing in public cold storages.

Growth of the Industry

In Canada the frozen fruit and vegetable industry started about 1930. Probably the first commercial use of frozen fruits in Canada was in the manufacture of jam. Some jam manufacturers started to pack strawberries mixed with sugar in pails and barrels about 25 years ago and ship them to public cold storages for freezing and storage. Data are not available on the volume of fruit packed for this purpose before 1938.

The commercial packing of frozen vegetables developed later than that of frozen fruits. At least one firm was experimenting in this field by 1932. However, in 1936 the first year for which data are available the pack of frozen vegetables was much smaller than that of frozen fruits.

For statistical purposes the Dominion Bureau of Statistics classified frozen fruits and vegetables under two headings: (1) for re-processing and (2) not for re-processing. Those packed for re-processing are usually packed in large containers holding 30 or more pounds of fruit and ten or more pounds of vegetables. Produce packed in such large containers is used by jam factories, bakeries, soup companies and other food producers.

The balance is classed as not for re-processing. That packed in containers of one pound or less is intended for sale to consumers in retail stores. That packed in containers between one and 30 pounds in the case of fruit and between one and ten pounds in the case of vegetables is often referred to as institutional pack as these sizes are preferred by institutional users. However, some of this pack is sold through food plans and retail stores to individual families.

Table 1.—Production of Frozen Fruits and Vegetables in Canada, 1936–55

—	Fruits				Vegetables			
	Not for re-processing	Value at factory	For re-processing	Value at factory	Not for re-processing	Value at factory	For re-processing	Value at factory
	000 lbs.	$ 000	000 lbs.	$ 000	000 lbs.	$ 000	000 lbs.	$ 000
1936	1,551	133	[a]	[a]	139	21	[a]	[a]
37	2,476	211	[a]	[a]	134	22	[a]	[a]
38	1,498	122	1,849	151	469	65	[a]	[a]
39	1,831	144	1,527	127	1,770	187	[a]	[a]
40	3,168	288	2,344	154	1,458	228	[a]	[a]
1941	3,290	401	2,305	195	1,917	235	[a]	[a]
42	2,240	283	3,791	368	932	133	[a]	[a]
43	2,939	504	2,051	292	1,310	205	2,083	199
44	3,521	580	1,084	67	1,850	311	1,208	108
45	3,944	802	639	119	1,640	296	1,719	149
1946	4,658	867	6,976	1,112	2,903	437	1,854	229
47	4,284	925	6,090	1,005	3,486	709	3,035	378
48	4,458	939	14,625	2,140	6,669	1,200	2,311	264
49	6,625	1,575	8,500	1,293	7,797	1,499	2,920	362
50	7,090	1,690	9,872	1,708	10,088	1,853	6,068	620
1951	5,292	1,248	7,777	1,497	6,140	1,197	6,252	760
52	6,382	1,630	9,347	1,853	8,689	1,658	5,786	796
53	12,662	3,216	10,473	2,008	12,377	2,456	8,343	1,082
54	14,107	3,085	13,455	2,531	14,932	2,950	3,845[b]	477
55	16,353	....	11,355	....	16,422	....	12,128[b]	....

Source: D.B.S. data.

[a] Not available.

[b] Original packages of ten pounds or over. Volume for 1955 may include substantial quantities which were re-packed in consumer or institutional packages but not re-processed.

The reported purpose of the pack does not necessarily correspond to its end use. Some that is packed not for re-processing, but does not come up to required standards, or sells too slowly may be re-processed. On the other hand, frozen peas, beans, lima beans, corn and carrots are sometimes packed in 50-pound bags for storage and are later re-packed for sale to institutions and individuals. In Western Canada this practice is becoming fairly common. Under present reporting regulations such packs are reported as for re-processing even though only re-packaging is contemplated.

Production of both frozen fruits and vegetables has shown an upward trend in the past 15 years. (Table 1). The pack of individual products varies sharply from year to year because of the requirements of other food processors and the fluctuation in farm production. The pack of frozen fruits has increased from 3·3 million pounds in 1938 to 27·7 million pounds in 1955. Frozen vegetable production stood at 3·4 million pounds in 1943 and had risen to 28·6 million pounds in 1955. Since 1953 the volume of both fruits and vegetables packed for retail and institutional use has been consistently larger than that for re-processing.

Principal Products Frozen

Eight products, peas, strawberries, raspberries, cherries, corn, beans, blueberries and apples have accounted for about 90 per cent of the total pack of frozen fruits and vegetables in Canada in the last two years. Of these, peas and strawberries were the principal items making up 38 and 19 per cent respectively of the total 1955 pack, (Table 2). Another commodity, gaining rapidly in importance is frozen french fried potatoes.

Peas are produced for freezing in five provinces but Ontario and British Columbia each put up about 40 per cent of the 1955 pack. Most of the balance was packed and frozen in the vicinity of Lethbridge, Alberta.

In British Columbia the production of peas for freezing is concentrated in the lower mainland, largely between the Ladner delta and Chilliwack. In Ontario production areas are not sharply defined but there is some concentration of production for freezing in the Belleville-Trenton and Chatham areas.

Table 2.—Principal Fruits and Vegetables Frozen in Canada 1952, 1954 and 1955

Commodity	1952	1954	1955
	– thousand pounds –		
Strawberries	6,920	9,328	10,794
Raspberries	2,727	6,972	5,906
Cherries	2,352	7,283	5,649
Blueberries	233	3,801	1,884
Apples	3,487	[a]	1,670
Peas	7,673	11,607	19,051
Corn	1,983	1,980	3,400
Beans	1,286	2,219	2,405
Other	3,543	3,149	5,500
Total	**30,204**	**46,339**	**56,259**

Based on D.B.S. data.
[a] Not available.

Strawberries are frozen in six provinces, but 68 per cent of the 1955 pack was processed in British Columbia. Ontario was the next largest producer followed by Quebec and Prince Edward Island. Almost 99 per cent of the frozen raspberry pack is produced in the lower mainland of British Columbia. About one half of it is for re-processing into jam.

Over 90 per cent of the cherries for freezing are produced in the Niagara peninsula of Ontario. Most of this fruit is packed near the point of production and shipped to Hamilton or Toronto for freezing. A large proportion of the pack is utilized in the production of pie filler and jam. The balance is sold to bakeries and other institutional users.

The bulk of the apples is frozen in Quebec, Ontario and British Columbia.

Grades

Grades for frozen fruits and vegetables have been established by the Federal Government. These are set forth in *The Meat and Canned Foods Act,* Processed Fruit and Vegetable Regulations administered by the Fruit and Vegetable Division of the Marketing Service. The grades established are *Canada Fancy* and *Canada Choice.* All frozen fruits and vegetables moving in inter-provincial or international trade should meet the requirements of the established grades.

Table 3.—Regional Distribution of Firms Packing Vegetables for Freezing in Canada, 1952-55

Year	Maritimes	Quebec	Ontario	Prairies	British Columbia	Canada
			– number –			
1952	7	9	29	2	17	64
1953	11	13	37	3	24	88
1954	11	8	33	3	23	78
1955	12	11	32	3	22	80

Based on D.B.S. data.

Number of Firms and Distribution

In 1955, 80 firms reported packing frozen fruits and vegetables. There is at least one firm in each province, but the bulk are located in Ontario and British Columbia; these provinces have 32 and 22 firms respectively (Table 3).

Scale of Operations

In 1955, over one half the firms freezing fruits and vegetables in Canada packed less than half a million pounds a year (Table 4). Twenty-six firms froze under 100,000 pounds annually, 28 froze between 100,000 and 500,000 pounds, 12 were in the 500,000 to 1,000,000 pound group and 14 packed over one million pounds annually. Before 1953 only six firms had an annual production of one million pounds or more.

Such small scale operations as 500,000 pounds or less cannot warrant a large investment in plant and equipment. However, fruits and vegetables are commonly packed for freezing in the same plant as for canning. In some plants packing for freezing operations has resulted in more continuous or fuller utilization of plant facilities. If the product is packed in large containers and delivered to a public cold storage for freezing the investment in additional equipment may be quite small.

On the other hand, a plant designed for specialized production of frozen fruits and vegetables requires a large capital outlay. Efficient packing in retail packages requires a mechanized production line which takes considerable factory space. Consequently, managers of some of the leading Canadian firms suggested that an annual output of well over a million pounds is required to warrant the construction of a plant for the production of frozen foods in consumer packages.

Packing in Relation to Freezing

It is logical to think of a producer of frozen fruits or vegetables as a firm which both packs and freezes the product. In Canada, however, these two functions are often separated. Out of 34 firms visited in Central and Western Canada in 1955 one half reported that they both packed and froze their product. The others hauled most or all of their pack to other plants for freezing.

Table 4.—Firms Packing Fruits and Vegetables for Freezing in Canada Classified by Volume of Pack 1952-55

Year	Under 100	101 to 500	501 to 1,000	1,001 or more	Total No. of firms
	– thousand pounds –				
			– number –		
1952	28	26	4	6	64
1953	37	25	16	10	88
1954	24	26	16	12	78
1955	26	28	12	14	80

Based on D.B.S. data.

Table 5.—Stocks, Production, Imports, Exports and Domestic Disappearance of Frozen Fruits in Canada,—Calendar Years 1952-55

—	1952	1953	1954	1955
	– thousand pounds –			
Stocks, Jan. 1	21,825	16,558	19,188	24,940
Production	15,729	23,135	27,562	27,708
Imports	1,346	3,979	4,415	5,725
Exports[a]	338	208	260	20
Stocks, Dec. 31	16,558	19,188	24,940	23,671
Domestic disappearance	22,004	24,276	25,965	34,682

Based on D.B.S. data

[a] Excludes blueberries.

Fruit for re-processing is largely packed in one plant and frozen in another. Most of it is packed by jam companies which have well established packing facilities but no cold storage. The fruit is mixed with sugar when packed and should stand a few hours before freezing to facilitate blending. Consequently the delay in freezing does not impair quality.

Delay in the freezing of fruit packed for retail use is more likely to impair quality than in a pack for re-processing. Nevertheless berries should stand an hour or two after mixing with sugar to permit blending with fruit juice. They may be hauled to a freezer during this blending period.

With vegetables the situation is different. Peas especially, need to move quickly from the field to the freezer. Vegetables are blanched before packing. The blanching inhibits enzymatic action which may impair quality. When held at room temperatures, however, the blanched product deteriorates rapidly. Thus it is vital that the product be frozen as soon as possible after being packed.

Nevertheless, it is possible to haul vegetables packed for freezing a reasonable distance without impairment of quality. To do this the product should be chilled before leaving the packing plant. It is also desirable to use ice or another cooling agent during transit. With such technique several Canadian firms are successfully moving vegetables for freezing from their packing plants to cold storages a few miles away.

Imports and Exports

The United States is the main source of the frozen fruits and vegetables imported into Canada. The Netherlands also ship some to Canada, but these for the most part, are institutional size packages of strawberries and raspberries whereas the U.S. imports are mostly consumer size packages (one pound

Table 6.—Stocks, Production, Imports, Exports and Domestic Disappearance of Frozen Vegetables in Canada,—1952-55

—	1952	1953	1954	1955
	– thousand pounds –			
Stocks, Jan. 1	12,801	9,875	16,667	17,285
Production	14,475	20,720	18,777	28,550
Imports	2,328	9,196	11,326	14,637
Exports	464	58	17	84
Stocks, Dec. 31	9,875	16,667	17,285	19,545
Domestic Disappearance	19,274	23,066	29,468	40,843

Based on D.B.S. data.

or less). In 1952 the total quantity of frozen fruits imported into Canada was 1·3 million pounds or 8·5 per cent of the total Canadian output; but by 1955 they totalled 5·7 million pounds or 21 per cent of the Canadian pack (Table 5). Strawberries and raspberries were the two principal frozen fruits imported.

Vegetable imports in 1952 were 2·3 million pounds or equal to 16 per cent of the Canadian pack. In 1955 they reached 14·6 million pounds or the equivalent of 51 per cent of Canadian production and were valued at 2·4 million dollars (Table 6). Peas, green beans, corn, lima beans, and french fried frozen potatoes were the major frozen vegetables imported.

Compared to imports the exports of frozen fruits (other than blueberries) and vegetables from Canada are negligible; totaling just over 100,000 pounds in 1955 (Tables 5 and 6).

Consumption

The per caput consumption of frozen fruits and vegetables in both Canada and the United States has been increasing in recent years (Table 7). Consumption per person in the United States is substantially above that in Canada. Part of this apparent difference however, is due to different methods of compiling the data in the two countries.

Table 7.—Per Caput Consumption of Frozen and Canned Fruits and Vegetables[1] in Canada and the United States, 1950-54

—	Fruits				Vegetables			
	Canada		United States		Canada		United States	
	Frozen	Canned	Frozen	Canned	Frozen	Canned	Frozen	Canned
	– pounds per caput –							
1950	0·4	13·7	4·22	21·0	0·5	31·2	3·38	33·2
1951	0·4	13·2	4·69	18·7	0·6	32·0	4·29	33·3
1952	0·5	14·3	6·53	20·6	0·8	30·4	5·24	32·2
1953	1·0	16·0	6·96	20·6	1·1	31·1	5·40	32·9
1954	1·2	16·6	7·35	19·2	1·5	31·2	5·85	32·6

Based on D.B.S. and U.S.D.A. data.

[1] Excludes fruit and vegetable juices, catsup and pulp and puree.

While the per caput consumption of frozen fruit and vegetables has been increasing in Canada so has the consumption of canned fruits. Canned vegetable consumption has remained fairly steady since 1950. Therefore, gains in the consumption of frozen fruits and vegetables do not appear to have been made at the expense of the consumption of canned products. Comparison with United States data suggests that the consumption of frozen products will continue to increase.

ANNUAL FEDERAL-PROVINCIAL AGRICULTURAL CONFERENCE

The eighteenth Federal-Provincial Agricultural Conference was held in Ottawa, December 3-5, 1956. As in the past the Conference was attended by officials of the Federal and Provincial Departments of Agriculture, the Canadian Federation of Agriculture, the Interprovincial Farm Union, and other agencies concerned with the problem of Canadian agriculture. The principal matters under discussion related to the economic outlook for the production and marketing of farm products, agricultural prices and farm income.

FARM INDEBTEDNESS IN SOUTHWESTERN MANITOBA, 1946 AND 1955

V. E. Nelson

In his article on *Changes in Farm Organization, Southwestern Manitoba,* 1946 and 1955, which appeared in the August issue of *The Economic Annalist,* the writer included a table on farm indebtedness. Part of the increase in this indebtedness from 1946 to 1955 is attributable to increases in the price of goods and services needed in farm operations. Another, and probably a fairly large part is due to the increased size of business through the purchase of additional land, as suggested by an average increase of $348 per farm in land debts and nine per cent in the number of farmers with this type of indebtedness, and an average increase of $905 per farm for all types of debts—long, intermediate and short term—and of a 25 per cent increase in the number of farmers with debts. The average debt per farm more than doubled and the percentage of farms with debts increased by 50 per cent from 1946 to 1955. A comparison of the different types of indebtedness indicates a decline in the relative importance of long-term debts; nevertheless, they still accounted for over one-half of the total indebtedness. The big increase was in intermediate-term debts for machinery and equipment which increased from eight to 27 per cent. Short-term debts showed a slight increase and represented about 20 per cent of the total indebtedness. Although the total number of farms with debts increased from 50 to 75 per cent of all farms, the number of farms with each type of debt did not increase accordingly. The number of farms with long-term debts rose from 26 to 35 per cent, the number of those with intermediate-term debts from 16 to 49 per cent and the number of farms with short-term debts from 19 to 43 per cent between 1946 and 1955.

Farm Indebtedness, Southwestern Manitoba, 1946 and 1955

Item	1946 (88 farms)		1955 (69 farms)	
	Amount	Per cent of total debt	Amount	Per cent of total debt
	-dollars-	-per cent-	-dollars-	-per cent-
TYPE OF DEBT—				
Long-term debt per farm (land)	570	69	918	53
Intermediate-term (machinery and equipment) debt per farm	68	8	465	27
Short-term debt per farm (operating expenses)	185	23	345	20
Average debt per farm	823	100	1,728	100
RELATIVE IMPORTANCE OF DEBT—				
Percentage of farms with debt		50		75
Percentage of farms with long-term debt		26		35
Percentage of farms with intermediate-term debt		16		49
Percentage of farms with short-term debt		19		43

Changes in indebtedness must also be viewed in relation to total investment free of debt. From 1946 to 1955 total owned investment increased by 76 per cent and total debts by 110 per cent. As a result the ratio of debt to owned investment rose from 8·0 to 9·5 per cent. The increase, especially in intermediate and short-term debt, was exaggerated by the fact that because of lack of grain elevator space farmers could market very little grain in the fall of 1955. On the other hand, the rise in indebtedness shows the growing use by farmers of short and intermediate term capital, needed to operate a modern farm business, take advantage of technological innovations, and adopt new and better farming methods and practices.

PUBLICATIONS OF THE ECONOMICS DIVISION

Elementary Agricultural Air Photo Interpretation. Packman, D. J. and L. E. Philpotts. Ottawa. December 1955. pp. 103 (incl. 62 Figs.).

The first manual published in Canada on air photo interpretation and the use of air photographs in studies of agricultural land use. The manual is well illustrated and the principles of air photo interpretation are explained in a clear and succinct manner. The interested reader will find it most useful as a source of references from which he may gain experience and develop his skill as an interpreter.

Directory of Farmers' Organizations in Canada, 1956. Compiled by Constance M. Jones. Ottawa, July 1956. pp. 23.

A revised edition of the *Directory of Farmers' Organizations* published in 1955.

Trends in Locker Plants and Home Freezers. Drayton, L. E., June, 1956, 45 pp.

The distribution of locker plant services across Canada is described on the basis of data available from licensing authorities. These data have also permitted some analysis of the use of these services and of their impact on agricultural marketing.

The following main headings are indicative of the subject matter:

Introduction,
The History of the Locker Plant Industry in Canada,
Extent of Industry,
Regional Patterns,
Factors Affecting Development of Locker Plant Services,
Importance of Locker Plants and Home Freezers in Food Marketing,
Summary.

OTHER PUBLICATIONS

Preliminary Report of Spring Grain and Grain Corn Costs for 1953-55. Fisher, G. A. Farm Economics Branch, Ontario Department of Agriculture, Toronto, Ontario. April 1956. pp. 12.

This report is concerned with the costs of producing spring grain and grain corn in those areas of western, central and eastern Ontario which are located in Corn Climatic Zone VI.

The study was designed (a) to provide a comparison of the costs of producing barley, oats and mixed grain and the costs of producing grain corn; (b) to show the relative feeding values of the spring grain and grain corn crops.

Costs, Incomes and Management Problems on Dairy Farms in Victoria. 1953 Dairy Survey. Bureau of Agricultural Economics, Canberra, Australia. January 1956. pp. 120.

A detailed description and analysis of the dairy farm business in the State of Victoria, Australia, based on a survey conducted under the supervision of D. B. Williams, Senior Project Officer in the Bureau of Agricultural Economics. The report is organized into the following Parts: *Dairy Regions of Victoria; The Cost Structure of the Dairy Industry; Costs, Income and Capital Expenditure; Farmers' Attitudes to Farm Development and Management Problems; Farmers' Attitudes to Investment and Borrowing; Farm Labour Force; Management Practices; Amenities on Dairy Farms; Regional and Farm Studies;* and an *Appendix—Technique of Survey Analysis.*

The Garden Controversy. Best, R. H. and J. J. Ward, Department of Agricultural Economics, Wye College (University of London), near Ashford, Kent, England. 1956. pp. 31. price: 3/.

"A critical analysis of the evidence and arguments relating to the production of food from gardens and farmland." The authors organize their discussion into four chapters: *Surveys of Garden Use and Productivity; The Use and Productivity of Gardens; A Comparison of Domestic and Farm Feed Production;* and *The Effect of Housing Density on Food Production.*

Progress Report, 1955. Ontario Dairy Herd Improvement Associations. Ontario Department of Agriculture. 1956. pp. 33.

A report describing the performance of dairy cows under the D.H.I.A. program. The first part deals with production records and the second with costs of production. The information was compiled by the Ontario Agricultural College and the Livestock and Farm Economics Branches of the Ontario Department of Agriculture.

Disponibilités. Mode de Vente et Lieux d'Ecoulement des Produits Agricoles. Division des Marchés et des Enquêtes, Service de l'Economie Rurale, Ministère de l'Agriculture, Province de Québec, 1956.

Four statistical reports, in a series of eleven on supplies and marketing of agricultural products, dealing with the Gaspésie, Eastern Townships, Richelieu, Abitibi-Témiscamingue and the South and North of Montreal regions. Another, the "Sommaire des Disponibilités, Mode de Vente et Lieux d'Ecoulement des Produits Agricoles, 1951 à 1954" brings the series to a close.

Profits and Problems of Farming in South-East England. Sykes, J. D. and G. P. Wibberley. Department of Agricultural Economics, Wye College (University of London) near Ashford, Kent, England. March 1956. pp. 73. Price 7/6.

"A study of success and failure in the business of farming in Kent, Surrey and Sussex during the three years ending 1954-55". The analysis of the data is reported under the following chapter headings: *The Farmer and his Market; A Survey of the Farm Business; Dairy, Livestock and Arable Farms—a Comparison; Farming Capital; The Struggle Towards Efficiency; The Feed Economy; The Labour and Machinery Complex;* and *The Returns to Small Farmers.*

Tractor Operating Costs and Performances on a Sample of Farms in South West England, 1955. Morris, S. T. and R. C. Rickard. Department of Economics (Agricultural Economics) University of Bristol, Devon, England. June 1956. pp. 26. Price: 2/

Section III, the main section in this report, deals with the *Results of the 1955 Investigation,* giving emphasis to the analysis of data on *Average Number of Hours Worked per Tractor; Seasonal Distribution of Tractor Work; Type of Work Done; Fuel Consumption* and an *Analysis of Operating Costs.* Section IV supplies *A Comparison of the Costs of Operating Tractors in 1947, 1951 and 1955.*

Farm Organization and Incomes in South West England, 1954. Morris, S. T. and H. W. B. Luxton. Department of Economics (Agricultural Economics), University of Bristol, Devon, England. July 1956. pp. 62. Price: 5/.

"An economic and financial survey of an identical sample of 215 farms in Cornwall, Devon and Dorset for the crop years 1953 and 1954" and "A summary of the results of an identical sample of 139 farms for the crop years 1947 to 1954"

An Economic Approach to Farm Rents. Ward, J. T. Department of Agricultural Economics, Wye College (University of London), Kent, England. Reprint from "The Journal of the Land Agents' Society". May 1946. pp. 8.

The writer expounds his views on what may constitute a "fair return" on capital, to owners of agricultural estates. He organizes his discussions into four sections: *The Social Income of Agriculture; Percentage Return on Capital. The Nature of "Pure Rent";* and *Rent and the Agricultural Price Review.*

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OTTAWA, CANADA

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DEPARTMENT OF AGRICULTURE, OTTAWA

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Minister of Agriculture

ANNUAL AND MONTHLY INDEX NUMBERS

Wholesale Prices, Farm Prices and Living Cost Indexes

Year and Month	General Wholesale Price	Wholesale Prices of Canadian Farm Products[a]			Farm Prices of Agricultural Products[b]	Prices of Commodities and Services used by Farmers		Consumer Price		Industrial Production
		Total[b]	Field[b]	Animal		Composite[c]	Equipment and Materials[d]	Total	Food	
	1935–39=100							1949=100		1935–39=100
1913	83·4	....	....	....	....	....	85·4	49·2	44·4	....
1914	85·4	....	....	....	....	85·3	90·2	49·6	46·0	....
1915	91·8	....	....	....	....	91·6	96·9	50·3	46·8	....
1916	109·8	....	....	....	....	100·5	101·7	54·2	51·8	....
1917	148·9	....	....	....	....	140·5	140·7	63·7	66·9	....
1918	166·0	....	....	....	....	160·2	164·1	72·0	76·9	....
1919	174·7	....	....	....	....	167·9	169·1	78·8	82·2	....
1920	203·2	....	....	....	....	186·5	190·1	90·5	94·4	....
1921	143·4	....	....	....	....	152·5	147·4	80·9	72·5	....
1922	126·8	....	....	....	....	134·1	124·6	74·9	61·5	....
1923	127·7	....	....	....	....	130·6	118·3	75·2	61·9	....
1924	129·5	....	....	....	....	131·9	122·3	74·0	60·7	....
1925	133·8	....	....	....	....	131·8	123·2	74·6	63·4	....
1926	130·3	144·4	158·5	130·2	....	130·6	119·9	75·9	66·6	....
1927	127·3	138·6	149·4	127·8	....	131·2	119·9	74·6	65·3	....
1928	125·6	136·3	134·3	138·2	....	129·3	118·3	75·0	65·6	....
1929	124·6	140·8	137·2	144·4	....	127·9	117·6	75·8	67·1	....
1930	112·9	119·5	105·8	133·3	....	117·0	105·6	75·3	65·6	....
1931	94·0	78·9	65·0	92·7	....	100·9	92·2	67·9	51·4	....
1932	86·9	65·5	60·4	70·5	....	93·3	89·3	61·7	42·8	....
1933	87·4	69·3	69·3	69·2	....	89·8	88·8	58·8	42·3	....
1934	93·4	83·5	80·5	86·5	....	95·5	96·8	59·6	46·2	....
1935	94·4	89·2	84·4	94·1	88·0	95·4	95·6	59·9	47·2	85·6
1936	96·8	97·9	102·2	93·7	96·9	98·1	98·7	61·1	48·8	94·6
1937	107·7	117·4	128·9	106·0	119·7	105·3	108·4	63·0	51·4	108·0
1938	102·0	102·9	100·9	104·8	105·0	101·7	101·2	63·7	51·7	102·0
1939	99·2	92·6	83·7	101·5	91·8	99·3	95·7	63·2	50·2	109·7
1940	108·0	96·1	85·4	106·7	96·8	106·8	101·8	65·7	52·6	131·4
1941	116·4	106·6	88·9	124·4	110·2	116·1	107·8	69·6	57·9	164·8
1942	123·0	127·1	109·7	144·6	133·1	131·6	119·2	72·9	63·4	195·7
1943	127·9	145·4	129·0	161·8	157·8	143·4	122·4	74·2	65·2	208·5
1944	130·6	155·3	144·5	166·1	172·4	148·0	126·0	74·6	65·5	212·4
1945	132·1	166·4	162·5	170·2	185·7	152·1	125·9	75·0	66·3	187·2
1946	138·9	179·5	177·9	181·2	204·1	157·0	128·0	77·5	70·0	171·9
1947	163·3	192·2	184·1	200·2	215·8	170·4	139·5	84·8	79·5	187·8
1948	193·4	232·1	200·6	263·7	255·8	197·6	173·1	97·0	97·5	196·3
1949	198·3	228·7	191·9	265·4	255·4	204·1	180·3	100·0	100·0	199·6
1950	211·2	236·7	191·9	281·4	260·8	210·4	189·9	102·9	102·6	211·5
1951	240·2	268·6	200·4	336·9	296·8	230·0	206·0	113·7	117·0	226·5
1952	226·0	250·2	223·0	277·5	274·4	243·1	215·8	116·5	116·8	233·0
1953	220·7	221·6	179·4	263·8	250·4	234·8	207·4	115·5	112·6	248·4
1954	217·0	213·6	170·9	256·2	234·8	237·2	203·3	116·2	112·2	244·6
1955	218·9	209·7	174·4	245·1	228·5	....	....	116·4	112·1	265·8
1956										
April	224·5	201·2	170·6	232·0	219·7	249·0	209·6	116·6	109·7	278·9
May	225·3	208·6	179·2	238·0	224·2	....	....	116·6	109·3	278·3
June	226·5	218·0	184·3	251·7	232·2	....	....	117·8	112·5	286·4
July	226·6	227·5	198·6	256·4	238·1	....	....	118·5	114·4	291·2
August	227·0	214·4	171·1	257·6	232·6	254·3	210·7	119·1	115·9	287·4
Sept	227·4	209·8	160·3	259·3	229·6	....	....	119·0	115·5	289·0
Oct	227·1	208·0	159·9	256·0	227·9	....	....	119·8	117·4	....
Nov	226·6	209·4	163·1	255·7	225·8	....	....	120·3	117·9	....
Dec	228·1	210·3	164·4	256·2	225·8	....	....	120·4	117·5	....
1957										
Jan	....	....	....	....	....	....	....	120·3	117·1	....
Feb	....	....	....	....	....	....	....	....	....	....
Mar	....	....	....	....	....	....	....	....	....	....

Source:—Dominion Bureau of Statistics, Ottawa.

(a) Prices at terminal markets.

(b) Indexes August 1955—July 1955 include final barley and oats payments announced November 15 and 29, 1956.

(c) Exclusive of living costs. Includes farm implements, building materials, gasoline, oil, greases, feed, fertilizer, binder twine, seed, hardware, tax rates, interest rates and farm wage rates.

(d) Differs from composite index by exclusion of tax rates, interest rates, and farm wage rates.

THE ECONOMIC SITUATION

The Agricultural Outlook for Canada in 1957[1].—The current high level of economic activity in the industrialized countries of the world is likely to continue well into 1957. The anti-inflationary measures taken by many countries should ease the strain on scarce resources and bring the world economy into better balance. Nevertheless, demand is expected to remain strong in most countries of the world. This will keep production and investment at a high level and should have a sustaining influence on the demand for agricultural products. The decline in agricultural prices during the past few years may have leveled off in the latter months of 1956, and it thus seems unlikely that there will be any further decline in the general level of farm prices in 1957.

Economic developments in the past year should lead to an increase in trade in agricultural products in 1957. There has been a general improvement in the international balance of payments situation and some countries have increased their gold and dollar holdings. Another encouraging factor was the introduction in various countries of more flexible fiscal and monetary policies. Western Europe introduced some measures liberalizing trade with the dollar area. Under the General Agreement on Tariffs and Trade, Canada obtained concessions in the United States tariff on several agricultural products. In the Commonwealth countries, changes in import restrictions provide Canada with more favorable trading conditions, particularly in the British West Indies.

For the Canadian economy 1956 was another year of substantial growth. The rise in the physical national product was close to the record increase of nine per cent achieved in 1955. The creation of new capital facilities proceeded on a broader scale than ever before and also increased more rapidly than in any previous postwar year. The general attitude of business is one of sustained confidence for 1957.

Generally buoyant activity, more employment, higher wages, large dividend disbursements, and better returns to farmers brought a steady increase in personal income levels. Continuing strength is expected for 1957 in the financial position of the Canadian farmer.

Economic conditions in Canada and the rest of the world in 1957 should be favorable to Canadian agriculture. Farm cash income will probably be maintained at the 1956 level; this will depend not so much on the size of the crop as on exports and the availability of elevator space for grain deliveries approximating those of 1956 from the large stocks presently stored on farms.

Cash income from the sale of livestock is expected to remain at the 1956 level. The output of eggs may be greater but prices are likely to be lower. Cash income from dairy products is expected to increase. Total farm operating expenses and depreciation charges may not differ very significantly from the 1956 estimates. Any change in farm net income from farming operations will depend largely on the size of the western grain crop in 1957.

Labor requirements in agriculture will continue to exceed the available supply. Labor shortages will continue the year round in dairying and stock farming while in other parts of agriculture additional workers will be needed only during the spring and late summer months. The necessity for organized labour movements within and between provinces will be greater than ever. It is considered desirable to increase the flow of immigrants for employment in Canadian agriculture.

---

[1] Based on statements presented at the annual Federal-Provincial Agricultural Conference held in Ottawa, December 3-5, 1956.

Seven per cent of the railways' current application for a 15 per cent increase in freight rates was effected on an interim basis last July. Transportation charges will average higher in 1957 even if no further increases in rates occur. The number of agreed charge contracts between the railways and various shippers is expected to continue to increase.

Increased railway efficiency will continue, with increased numbers of diesel-electric locomotives, new rolling-stock and the further installation of modern automatic equipment.

Commercial cold storage facilities did not increase in 1956 as most of the construction started during the year was not expected to be ready for use until early in 1957. A shortage of freezer space during peak storage periods is expected in 1957 but cooler capacity will be adequate in most areas.

Net expansion is not expected in the locker plant industry but domestic refrigerators and home freezers will continue to play a growing part in consumer food storage. Expansion similar to that in 1956 is forecast for 1957.

Generally, good crops were harvested throughout Canada in 1956, although excessive rain and early frosts lowered the quality in many areas. In Western Canada the almost unbroken series of bumper yields again resulted in a shortage of space in country and terminal elevators. Supplies of grain for livestock feeding are much larger than expected requirements, but roughages, although adequate for a normal feeding season, are somewhat inferior to the roughages available for the previous feeding season.

World production of wheat in the 1956-57 crop year, estimated at 7.5 billion bushels, is a record. Stocks available for export and carry-over held by the four major wheat exporters in the fall of 1956, estimated at 2.3 billion bushels, were only slightly higher than a year earlier. Higher levels of economic activity throughout the world, smaller crops in Europe, and continuing efforts of governments in some countries to improve nutritional standards should have a sustaining effect on export movements.

Total supplies of Canadian wheat for 1956-57 are estimated at 1,075 million bushels, consisting of the July 31, 1956 carry-over of 537 million and the new crop of 538 million bushels. Although the average protein content of the new crop is somewhat lower than that of the previous crop, the quality of the protein is improved. Preliminary estimates of grades of the new crop are as follows: No. 1 northern, 1 per cent; No. 2 northern, 20 per cent; No. 3 northern, 25 per cent; No. 4 northern, 25 per cent, other grades, 29 per cent. The 1955-56 carry-over was mostly high grade, and since the new crop contains substantial quantities of No. 4 northern and No. 5, as well as some No. 6 and feed wheat, all grades except No. 1 northern are in good supply.

Total supplies of Canadian feed grains in 1955-56 are up about 17 per cent over last year's level of about 39 per cent above the ten-year average. The increase in this year's supplies results mainly from a larger carry-over and substantially greater outturns of oats and barley. The mixed grain crop is the largest on record and the corn crop, although smaller than the 1955 crop, greatly exceeds the ten-year average. Livestock numbers are somewhat lower than a year earlier and feed requirements may be reduced slightly. The export market is expected to absorb more oats and barley during 1956-57 than in the preceeding year. However, because of the substantially greater domestic supplies and despite the expected increase in exports and continued heavy domestic requirements, it is probable that carry-over stocks of oats and barley at July 31, 1957 will exceed the July 31, 1956 level by a fair margin.

Given an average barn-feeding season, generally adequate supplies of fodder and the major feed supplements are indicated for the current crop year. Production of tame hay was slightly lower than in the previous crop year and the quality is somewhat below average. Pastures continued to provide feed for an extended period in Eastern Canada which tends to stretch out the available winter feed supplies. In Western Canada, although supplies are generally adequate, the margin of reserves in relation to cattle numbers is considered to be narrow. Supplies of millfeeds and high protein supplements of both vegetable and animal origin will likely be adequate for requirements.

Total meat production in inspected or approved establishments in Canada in 1956 was close to the record 1.9 billion pounds set in 1944. In 1957 production will probably differ only slightly from 1956 levels, in expected reduction in pork production being probably offset by increased beef production.

A continued strong domestic demand for meat, plus an anticipated firm improved U.S. market should prevent any significant decline in cattle prices, while all the indicators—consumer demand, export possibilities, and the supply position—point to strong hog and pork prices, both in absolute terms and relative to beef, thus causing an additional increase in the already high level of domestic disappearance of beef.

A slight increase is looked for in calf slaughter, and sheep and lamb slaughter will probably remain about the same. No marked change in prices of calves, or of sheep and lambs, is expected.

Milk production in 1957 is estimated at 17.5 billion pounds, about the same as in the previous two years. The fluid milk market, expanded by increased population, will probably absorb any small increase in total milk production and perhaps divert some milk from other products to fluid use.

Consumption of creamery butter in 1957 is expected to exceed production; the difference will be made up out of existing stocks. Cheddar cheese production and consumption are likely to be about the same as in 1956 with slightly less cheese available for export in 1957. Output of evaporated whole milk and dry skimmed milk will probably be equal to consumption, with any increase reflecting the growth in population and fairly stable per capita consumption.

Ice cream production may reach 34 million gallons, about one million gallons more than the previous record set in 1955.

During the first five months of 1957 swings in the supply and price patterns will be more pronounced and egg prices will, on the average, not be as favorable to producers as during the corresponding period of 1956. During the summer months it is expected that production and prices will be similar to those in the summer of 1956.

The 1957 season will likely see a further increase in number of colonies of bees in the four western provinces and with favorable weather conditions the 1957 crop of honey may exceed that of 1956. The 1957 crop of maple products will depend on the weather conditions prevailing in March and April. Exports of maple products to the United States are expected to continue their upward trend.

The estimated redried weight of all types of tobacco in 1956 totaled 151.5 million pounds, comprised of 139 million pounds of flue-cured tobacco and 12.5 million pounds of burley, cigar leaf, dark pipe tobacco. Total production was almost 25 per cent above the 1955 output, and second only to the record 1954 crop.

At October 1, 1956, the beginning of the new marketing year, redried stocks of old-leaf tobacco totaled 158 million pounds. This is a substantial reduction from stocks one year earlier and a result of the rather small 1955 flue-cured tobacco crop.

Exports in 1956-57 could amount to about 42 million pounds. Utilization by Canadian manufacturers, already at a record level of about 112 million pounds in 1955-56, is expected to amount to some 118 million pounds in 1956-57.

Most of the 1956 Ontario flue-cured crop had been sold by November 30, at prices averaging between 46 and 47 cents per pound, green weight. These are the highest average prices on record, and final returns for all tobacco in Canada from the 1956 crop may establish a new record average price.

Production of pedigreed cereals in 1956 was about the same as in 1955. Because of frost damage and poor harvest weather there may be some local scarcity of good quality pedigreed seed but total supplies of most of the popular varieties should be adequate for domestic needs, leaving a surplus of some varieties available for export. The production of Selkirk wheat, Parkland barley and Rodney and Garry oats was greatly increased.

Estimated production of all the principal forage crop seeds in 1956, with the exception of sweet clover and meadow fescue, was less than in 1955. The alfalfa seed crop was much the smallest on record and production of alsike clover, red clover, timothy, bromegrass and crested wheatgrass was considerably below average.

With the exception of alfalfa and red clover seed, supplies of the principal hay and pasture seeds, in spite of smaller production, should be sufficient to meet domestic requirements. As supplies of alfalfa seed will not be sufficient for domestic needs it is expected that substantial quantities of seed of adapted varieties will be imported from the United States to supplement Canadian production. Canadian grown double-cut type red clover seed will also be in short supply, but seed to meet domestic needs is available from the United Kingdom and the United States.

Smaller crops of many forage seeds in Canada, the United States and Western Europe have stimulated prices on world markets and prices to growers in 1956 are considerably higher than in the preceding year.

There was some increase in estimated production of peas, beans and corn in 1956, although production of beans and corn was considerably below average. Most of the sugar-beet stecklings in British Columbia were lost through winter killing and practically no crops were harvested. Production of swede and mangel seed was confined entirely to the Maritimes and is the smallest in years. Substantial imports of most vegetable and root seeds will be required to supplement Canadian production; this is, however, a normal situation and it is expected that the necessary supplies will be available as usual from the United States and Europe.

Total production of oil seeds in 1956 was much higher than in 1955, but all the increase was in the industrial oil seed class rather than in the edible oil seed group. The domestic and export markets are expected to readily absorb the 1956 production of soybean and sunflower seed at prices close to the level of prices for the 1955 output. Flaxseed is expected to encounter stronger competition in export markets as supplies from other sources will be considerably higher than last year. Prices are likely to be moderately to considerably lower and carry-over stocks will probably be substantially higher than a year ago. The export market is again expected to be the most important outlet for 1956 crop rapeseed marketings, but whether or not the bulk of the crop will be absorbed is still uncertain.

The 1956 mustard seed crop was more than two and one half times larger than the 1955 crop, but the crop is expected to move rapidly into export markets.

An increase in net imports of grain corn is likely, as the 1956 crop is substantially lower than the 1955 crop. Dry field bean production is about equal to the 1955 output and may be slightly below domestic requirements. Dry field pea production is one-third higher than in 1955 and an export surplus of one quarter million bushel is probable.

Sugar beet production was nine per cent lower than in 1955 and will likely provide about 15 per cent of domestic sugar requirements in 1957.

Most of the 1956 production of spinnable scutched flax will again likely be exported to the United States, while the domestic market will probably absorb most of the output of scutched tow.

Gross National Product.—Canada's G.N.P., in the third quarter of 1956, reached a seasonably adjusted annual rate of $30 million. Price factors have exerted a somewhat greater influence in recent quarterly increases in the value of production; about one-half of the gain in the third quarter is attributable to higher prices and the remainder represents an increase in the real volume of output.

Concerning the increase in income, the major factor was an increase of more than three per cent in labor income, after allowance for seasonal variation. The gains in income were accompanied by a continued rise in personal expenditures on consumer goods and services, which showed a further increase of two per cent during the third quarter of 1956. Business investment outlays for plant, machinery and equipment were a major expansionary factor during all of 1956 and in the third quarter they supplied a continued impetus to demand, which showed a gain of about seven per cent. Declines in residential construction and in the rate of inventory accumulation were partly offset by gains in government outlays and a small reduction in the deficit on current international account.

On the basis of available information, the G.N.P. in 1956 may be estimated at about 11 per cent above the $26.8 billion recorded in 1955. Final product prices, in the first nine months of 1956, being three or four per cent higher than in the corresponding period of 1955, the gain in the physical volume of output will likely amount to about seven per cent. This gain in physical output will be very close to the nine per cent increase achieved in 1955, when the economy was recovering from the mild 1953-54 recession and increases in the labor force and in productive capacity had not been fully utilized.

In 1955 the pattern of demand was characterized by rising expenditures for consumer goods and services, a sharp advance in housing outlays, and a large gain in exports. In the first nine months of 1956, a very sharp expansion in the rate of fixed capital investment expenditure constituted the major dynamic element in the pattern of demand but consumer expenditures and exports also recorded increases which were very close to the percentage increases registered in 1955. As a result, total final purchases (excluding inventories) by the major spending groups increased by more than 11 per cent in the first nine months of 1956 compared with an increase of less than nine per cent in 1955. However, a large proportion of these final purchases represented imports of goods and services in the 1956 period under review, and the value of Canadian production increased only slightly more than in 1955. In volume terms, the gain in production in 1956 will be somewhat lower than in 1955. The gains in production in the first nine months of 1956 were accompanied by an increase of five per cent in the number of persons with jobs in the non-agricultural sector of the economy. This pronounced increase was made possible by a decline in unemployment, further transfers of persons from agricultural to non-agricultural employment, and the entry of new people into the labor market. Persons without jobs and seeking work in the first nine months of 1956 were about 25 per cent fewer than in the corresponding period of 1955, and averaged three per cent of the total labor force.

Prices, for the first nine months of the year, increased in almost all categories of gross national expenditure. Prices of machinery and equipment items were about seven per cent higher, on the average, and the price factor in new non-residential construction averaged eight per cent higher. Residential construction prices increased by about four per cent. Exports and imports of goods and services both rose in price by three or four per cent. The price factor in consumer expenditure rose by about one per cent. Consumer prices rose more sharply in the second half of the year; the consumer price index rose by more than three per cent, between May and November, mainly as a result of a rise in food prices which had previously been declining.

FUNCTION AND ACTIVITIES OF THE ECONOMICS DIVISION—PART II

J. F. Booth

Co-operative Relationships

Much of the work of the Economics Division is done on a co-operative basis. The agencies with which such arrangements are made may be grouped into three categories; (1) other Services and Divisions of the Department of Agriculture, (2) other Departments of the Federal Government (3) provincial government departments, universities and colleges.

A substantial part of the Division's activities i.e., the assembling and analysis of statistical and other data relating to departmental problems, and the preparation of memoranda and reports, is handled in co-operation with the divisions concerned. Much of this is of a very informal nature. Some of it involves the setting up of committee or working groups representative of the Economics Division and of the Division in which a problem has arisen. Many such groups are established, complete their work and are dissolved.

In the case of the more formal research projects, co-operative relationships may involve a committee for purposes of consultation. The conduct of a study may result in the sharing of responsibility. Such projects may involve extensive field survey activity. In such instances the preparation of schedules, contacting of agencies or persons, and the taking of records and preparation of final reports may be a joint undertaking. Two examples of this sort of project may be cited. One involves the study of the experiences of farmers in British Columbia with the use of a sprinkler irrigation system. In this instance the Experimental Farms Service, which is testing such equipment, and has many requests for information on capital and operating costs and on the kind of system best adapted to particular conditions, sought the co-operation of the Economics Division in a study of the experiences of representative farmers who have sprinkler systems in operation. Plans for a project were developed by consultations. Field work and analysis of data were joint undertakings. The Experimental Farms Service undertook to publish the results in a bulletin suitable for use by farmers. The Economics Division issued a report for limited circulation to research workers.

The second involved the operations of creameries and cheese factories in several provinces. Here the problem centered on means of reducing operating costs, including possible consolidation of units. In this instance, personnel of the Dairy Division worked with that of the Economics Division in planning the project and obtaining business records of operating agencies.

As regards co-operative relationships with other departments and agencies of the Federal Government arrangements are very similar to those already reviewed. A considerable number of examples of informal interdepartmental undertakings might be cited. For example the Division has supplied economic data and price forecasts on agricultural products used by the Economics Division of the Department of Trade and Commerce in its cost of living studies and in its current reviews and forecasts of business conditions in Canada. Division personnel served on a working group arranged by the Economics and Research Branch, Department of Labour, which prepared a series of pamphlets on farm labor problems. The staff of various Departments serve on Committees and assist in the preparation of agricultural outlook information for the annual Federal-Provincial Conference.

The Division, in co-operation with divisions in several government departments, prepares the biennial report to the Food and Agriculture Organization, dealing with agriculture, fisheries, forestry and nutrition in Canada .

The Economics Division, as a user of statistics, relies extensively on the Dominion Bureau of Statistics, and in particular the Agriculture Division, for basic information. This places a heavy emphasis on the need for co-operation.

This is achieved by means of formalized committees or working groups in some cases but is more frequently attained by informal and personal contacts. A bimonthly publication "The Current Review of Agricultural Conditions in Canada" is a joint product of the Economics and Agriculture Divisions. There exist standing committees which meet to discuss problems on agricultural statistics as they arise. Frequently sub-committees are set up to deal with special problems. A recent example of this is the Standing Committee on Livestock Statistics which has had three separate sub-committees working almost simultaneously on problems of uninspected slaughter statistics, conversion factors and quarterly pig surveys. Occasionally the staff of the Economics Division and the Agriculture Division work together on special projects such as compilation of statistical reference volumes, types of farming studies, food consumption statistics and others.

The Economics Division, because of the wide scope of its operations, depends not only on the Agriculture Division for statistics but also on the other divisions of the Bureau. For instance, the Labour and Prices Division makes a number of special price compilations and co-operates extensively in day-to-day activities. The Economics Division is represented on a committee organized by the Research and Development Division of the Bureau to study labor productivity. It actively participates in discussion panels on prices and price indexes, on the development of census forms and on other matters involving agriculture.

One of the largest continuing co-operative programs participated in by the Economics Division is with the Foreign Trade Service of the Department of Trade and Commerce. Foreign Trade Officers abroad supply the Economics Division, partly on a regular basis and partly on request, with economic information on legislation, policies, production, prices, marketing agreements and the like. This information is published regularly by the Division in "Agriculture Abroad" and "Spot News". The information is also used to meet a variety of requests from administrative personnel.

Another project in this general category might be mentioned. It involved a study of the use made of family allowances by farm families in Western Canada. The study was requested by the Department of National Health and Welfare and paid for by that Department. It was handled by the Economics Division as a part of a study on Levels of Living in Rural Areas of Western Canada.

Co-operative arrangements for the conduct of research with universities, departments of provincial governments, etc. have been numerous and of long standing. A substantial proportion of the research projects handled have been on this basis. The arrangements vary a good deal but in most instances involve joint participation of personnel and in the use of cars for field work.

Projects developed on this basis are usually covered by correspondence in which the responsibility of each part is agreed upon. This varies from instances in which the province has major interest to the other extreme where federal interest is paramount. On the whole, federal expenditures on co-operative projects have been substantially heavier than those of provincial bodies.

In some instances the Division has co-operated with provincial agencies in getting projects of provincial interest under way and then has withdrawn when the provinces were in a position to continue the work without assistance.

In several instances provincial grants have been made to assist in the conduct of research projects carried on by the Division in these provinces. As mentioned earlier, the provinces and universities provide office accommodation to the Division without charge.

As far as projects of an interprovincial or national character are concerned a substantial number are undertaken and in some instances the provinces co-operate. In the conduct of such projects no question of jurisdiction arises. Increased emphasis has been put on such projects in recent years.

Specific problems and requests are usually dealt with in the manner described, but it should be noted that the Division has itself, and without assistance, undertaken projects within particular provinces where the results are likely to be of interprovincial or federal interest.

Administrative Functions

The Division participates in the administration of several marketing acts. These include the Agricultural Prices Support Act, under which a member of the Division staff acts as a member and Secretary-Manager of the Agricultural Prices Support Board; also the Agricultural Products Marketing Act and the Agricultural Products Co-operative Marketing Act of 1939.

Special Research Services

In addition to the regular service functions performed by the Division for the Administrative and other Services, special arrangements pertain to the Agricultural Prices Support Board and the Prairie Farm Rehabilitation Administration. The Department recognizes that these bodies require research and service beyond the ordinary functions of the Division. Recognizing also that it is desired that all research in agricultural economics be centered in one unit, the Department has provided that the Division should act as the research agency for the Board and for P.F.R.A.

Information and Extension Services

The demand for economic information relating to agriculture has increased very appreciably in the last decade or two. To meet that demand the Department, through the Economics Division, has undertaken a comprehensive program of economic research and service. Obviously it is important that the information obtained be made available to those interested.

This is done in various ways. Most research projects lead to reports of some kind. Those that are of the service type, i.e., requested by the Department for administrative purposes, are not usually published. The larger projects, each of which represents a considerable amount of original work and may be of interest to a large number of people, usually result in reports that are distributed to the public. Many of these are prepared in processed form. Others are printed. The issues range from about 500 to 7,500 copies depending on the type of project. Reports of national interest and those concerning the French speaking areas are published in both English and French.

Some projects are designed to extend over several years. Others of intended shorter duration may not result in a report as soon as expected. In such instances preliminary results are usually released either in the form of a processed report or as an article in *The Economic Annalist* or some other periodical. Articles for farm publications and for journals of the various professional societies are frequently prepared.

The results of research are also taken directly to those concerned in other ways. In the case of most farm management surveys, co-operating farmers are provided with summaries of their own business including analysis of efficiency factors, in comparison with other farms. Research results in general are publicized through the medium of short courses, conventions, meetings of farmers, marketing officials, radio addresses and the like. A considerable amount of such extension work is done each year. Much of it is done under the auspices of provincial agencies.

The Division has, of course, a large volume of enquiries by mail and otherwise. Many of these come from other countries. Publications serve to answer many of these but a large number require special treatment.

Division Publications

In addition to the bulletins and reports dealing with research projects the Division issues several regular publications. These are:

The Economic Annalist—Now in its 26th year of issue this bimonthly periodical does two things. It brings together, regularly, the several series of indexes issued by the Dominion Bureau of Statistics that are likely to be of interest to persons concerned with agriculture. This is supplemented by an analysis of business conditions relating to agriculture.

The other main function of the Annalist is the provision of a medium for the release of preliminary results of research. Reprints of research articles are frequently distributed in considerable numbers. This provides a quick and inexpensive method of getting material to those wishing it.

The Current Review of Agricultural Conditions in Canada—This publication, prepared jointly by the Division and the Agriculture Branch of the Dominion Bureau of Statistics, reviews the commodity situation every second month. National and international developments likely to have a bearing on Canadian agriculture are summarized. The relation of farm prices to urban wage rates and costs of living is dealt with. The review also serves as a medium for the release of the material prepared for the annual Federal-Provincial Agricultural Outlook Conference.

Agriculture Abroad—This report, issued bimonthly, is primarily a digest of legislation and policies in effect or under consideration in other countries. It brings together material derived from many sources, including Canadian Trade Officers Abroad. Its purpose is to keep administrators and others abreast of developments elsewhere that may have a bearing on Canadian agriculture. It also serves as a link between the Trade Commissioner Service and Canadian agriculture.

"Agriculture Abroad" goes to people in 45 countries. About 75 per cent of these people reside in the United Kingdom, the United States, Australia and the Netherlands.

"Agriculture Abroad" is supplemented by "Spot News from Abroad" which is released weekly.

THE AGRICULTURE OUTLOOK IN THE UNITED STATES[1]

Farmers in the United States often face problems similar to those faced by Canadian farmers. Consequently, agricultural trends in the United States are of great significance to Canadians.

At the 34th United States Annual Agricultural Outlook Conference held in November, 1956, in addition to the usual forecast of the immediate prospect for agriculture and for each major agricultural commodity projections were made of the longer term outlook. Special meetings were also held to discuss problems of family living and the outlook for consumer credit and prices. The following is a summary of the highlights of a few of the thirty odd papers presented.

The Present Situation.—Agricultural incomes declined from 1952 to 1955 following peaks attained during the Korean war period. This decline in income was associated with the accumulation of surpluses in wheat, corn, cotton and dairy products.

In the first nine months of 1956, however, net realized farm income was about four per cent higher than in the same months of 1955. Although prices of farm products have averaged two to three per cent higher since mid-1956 than during the same period in 1955, this gain has been offset by an increase in prices paid by farmers. However, increased marketings combined with new Government programs, especially the Soil Bank and wool programs, have brought about net increases in farm income.

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[1] Prepared by L. E. Drayton, a member of the Canadian group attending the 1956 U.S.A. Agricultural Outlook Conference.

Under the Agricultural Trade Development and Assistance Act of 1954, also known as P.C. 480, the United States government is actively promoting exports of surplus agricultural products. Largely as a result of this program the volume of agricultural exports in 1955-56 attained the highest level in the last 29 years. The goverment program has involved subsidization of exports where United States domestic prices exceed world prices.

Nevertheless, stocks of corn and cotton increased substantially during the crop years ending in 1955 and 1956. Wheat stocks increased considerably in 1955 but changed little in 1956. The situation with respect to stocks of dairy products was brighter. By mid-November, 1956, Commodity Credit Corporation stocks had been reduced to zero for butter, 12 million pounds for non-fat dry milk and 196 million pounds for cheese from 1956 peaks of 467 million pounds of butter, 600 million pounds of dry milk and 436 million pounds of cheese.

Supplies of red and poultry meats have been abundant although surpluses have not developed. High consumer incomes and relatively low meat prices have made possible utilization of the entire output. Per capita red meat consumption in 1956 probably exceeded the previous recorded high set in 1908, to attain an expected level of 163½ pounds; poultry meat consumption was also at record levels.

The Outlook for 1957.—In general the economists addressing the United States Outlook Conference expected some further improvement in agricultural income in 1957. It was expected that the Soil Bank program would moderately reduce production of wheat, corn and cotton while maintaining the income of producers of these crops. Meanwhile, special export programs will be continued to help reduce stocks which, at the beginning of the 1956-57 crop year, exceed one billion bushels for wheat and 14.5 million bales for cotton. Corn stocks at the end of the crop year are expected to be up from 1.17 to 1.35 billion bushels as a result of the record 1956 crop. Total agricultural exports are expected to increase about 25 per cent during the year ending July 1957 from the previous year.

Milk production in 1957 is expected to be two billion pounds more than in 1956 and to exceed current commercial usage. Consequently, special disposal programs will probably be continued. The price of milk to farmers will remain near the present level so that returns from milk production may attain a record high in 1957.

Supplies of red meats, especially pork, are expected to decline somewhat in 1957 from 1956 peaks. As a result, higher hog prices are anticipated. Beef and cattle prices may also be up somewhat from 1956 levels.

Production of eggs, broilers and turkeys in 1957, is expected to exceed the record levels set in 1956. Consequently, with the possible exception of broilers, prices for these commodities are likely to average a little lower in 1957 than in 1956.

The Long-Term Outlook.—Looking into the more distant future the prospects for United States agriculture appear fairly bright. There can be little doubt that the United States domestic demand for agricultural products will increase. A fairly rapid population growth is expected. Estimates vary as to the rate of growth but an increase of at least 25 per cent by 1975 appears to be highly probable. If per capita food requirements remain unchanged this will increase total food requirements by 25 per cent.

However, there is reason to expect demand for food to increase even more rapidly than population. On the basis of projections of trends in gross national product, disposable income, in the hands of consumers expressed in terms of

1956 dollars is likely to almost double between 1956 and 1975. On a per capita basis the increase in real income will be considerably less but nevertheless will probably be as much as 50 to 55 per cent.

In recent years in the United States expenditures for food at retail stores and restaurants have increased about in proportion to income. If this pattern continues per capita expenditure on food may increase about 50 per cent by 1975—assuming no change in price levels.

However, this does not mean that per capita consumption of each class of food or any specific class of food will increase 50 per cent. Much of the increase in expenditure may arise from the purchase of more services with food. There will probably be a trend to use more pre-cooked and prepared foods. Also the proportion of meals eaten in restaurants may well increase.

Another portion of the increase in food expenditure resulting from higher incomes is likely to be represented by marketing costs as it is expected that marketing costs will increase per unit of food sold in the next few years. Freight rates will probably continue to increase, in fact, applications of the railway companies for increases are currently being considered. Hourly earnings of food marketing employees have been increasing steadily at the rate of 4 to 5 per cent per annum and will probably continue to do so. After all, there is unlikely to be a large increase in per capita disposable income in the hands of consumers without general increases in wage rates. Although technological changes are reducing the labor requirements in many phases of marketing, it appears unlikely that these will proceed with sufficient rapidity to offset the effect of increasing wage rates.

Nevertheless, it is the reasoned view of leading American specialists in demand analysis that some portion, possibly as much as a fifth, of the expected increase in per capita income, will lead to increased per capita consumption of food.

Combining the effects of expected population increases and income increases it was estimated that the United States will require about 35 per cent more food in 1975 than in 1955. Of course, the increases in requirements will differ with various food classes and may be negligible for some foods and as high as 100 per cent for others.

Such increases cannot take place unless food supplies are augmented to the required degree. Further, the projections made assumed no change in farm prices for food products in terms of 1955 dollars. If farm prices increase substantially, the increase in food consumption is unlikely to be as large as that indicated. To obtain the required food supply domestically, United States farm output would have to increase one and a half times as rapidly in the next twenty years than it did in the period 1910-12 to date. However, a large portion of the increase in farm output during the last 40 years has come from the substitution of mechanical power for animal power. The number of draft animals remaining on farms has been reduced to the point that further substitution of mechanical power for animal power will necessarily proceed at a slower pace than has prevailed in recent years. Consequently, the gains in agricultural output resulting from such substitution during the next twenty years will be much slower.

Nevertheless, substantial increases in agricultural output can be obtained by further adoption of new technologies which improve yields of crops and increase efficiency in livestock feeding. The question is not so much whether the United States can produce enough food to meet its requirements, but whether it can obtain the necessary readjustments in agriculture at reasonable cost.

Even though production of food in the United States may fail to increase as rapidly as consumption, over the long-run the main agricultural problems of the next five years are more likely to arise from surplus than deficient production. Gains in agricultural productivity will continue so that any shift away from surplus production is likely to be quite gradual.

A REVIEW OF WORLD AGRICULTURE 1955-56[1]

The F.A.O. Reports.—The main problems of world agriculture remain basically unchanged. This is the judgment of the Food and Agriculture Oganization of the United Nations as it appears in the Organization's latest review of the state of food and agriculture. However, progress has been made since the end of World War II. This progress may not have been as great as desired, nor equal among all countries, but as the report points out production in 1955-56 continued to increase and was some three per cent higher than in 1954-55 and some 26 per cent above the prewar level.

Production rose sharply in North America and Oceania, the regions already most troubled by surpluses, but apart from a substantial gain in the Far East, production in the other regions showed little change and in some cases declined. Production of cotton and grains increased from the low levels of 1954-55, and there was a continuation of the tendency for the output of livestock products to increase more rapidly than crop production in the more developed countries.

The boom conditions in the industrialized countries led to an increase of about five per cent in the volume of world trade in agricultural products in 1955, so that it reached the highest level since the war. More than half of the increase was due to larger Western European imports. World trade in agricultural products was still, however, only five per cent above the 1934-38 level, in contrast to a rise of 70 per cent in the volume of world trade as a whole.

Prices of agricultural products generally continued to decline and farm incomes declined even further in most countries. Where farm and international prices dropped there was no very pronounced effect on retail food prices, though in some few countries food prices declined slightly in relation to the general retail price level. Marketing margins seem generally to have increased.

In contrast with the rapid changes from year to year in the earlier postwar period, levels and patterns of food consumption have now become much more stable. Recent progress in the more advanced countries has been mainly in the quality and variety of the diet. In the less developed regions improvements have shown themselves largely in increased calorie intakes, though in some countries there have been small increases in the consumption of livestock products and fish. Larger production and lower prices have resulted in some shift back from wheat to rice in the importing countries of the Far East.

The continued accumulation of surplus stocks of some commodities led to revisions of agricultural policies in some countries. The most important new departure is in the United States, where, under the Agricultural Act of 1956, a "Soil Bank" is being established in order to curtail production. Elsewhere changes have been less radical. In some countries, mainly in Western Europe, there have been changes in emphasis in farm price policies, designed to adjust production more closely to present needs and make their agricultures more competitive. Guaranteed prices have rarely been raised (Argentina is a notable exception) and there has been an increasing trend toward helping farmers to reduce costs by improving the farm structure or subsidizing means of production.

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[1] This review is based on the following reports issued by various U.N. agencies.

The State of Food and Agriculture 1956. Food and Agriculture Organization of the United Nations. Rome 1956. pp. viii+143.

World Economic Survey 1955. United Nations Department of Economic and Social Affairs. New York. 1956. pp. xi+201.

Economic Survey of Latin America 1955. Prepared by the Secretariat of the Economic Commission for Latin America. United Nations Department of Economic and Social Affairs. New York. 1956. pp. xiii+176.

Economic Developments in the Middle East 1954-1955. Supplement to World Economic Survey. 1955. United Nations Department of Economic and Social Affairs. New York. 1956. pp. viii+151.

Selected Problems of Production and Trade in the Near East. Food and Agriculture Organization of the United Nations. Rome. 1956. pp. vi+167.

Agricultural Policies in Europe and North America. First Report of the Ministerial Committee for Agriculture and Food. May 1956. Organization for European Economic Co-operation. Paris. pp. 371.

At the same time, however, in the less developed parts of the world a continued rapid expansion of agricultural production is still the chief need and remains the primary aim of national policies. In 1955-56 several of the most important postwar development plans were completed and new plans were prepared or implemented to follow up the progress made in the earlier ones.

Agricultural Planning.—The FAO reports that while the chief aim of many of the new development plans is rapid industrialization, further substantial increases in agricultural production are also planned. In India, for instance, the success of the first five-year plan in raising agricultural production has enabled more emphasis to be placed on basic industries in the second plan. On the other hand, some countries at a rather earlier stage of economic development, such as some African territories, whose initial programs were concerned mainly with providing foundations of future progress, in the form of basic public works such as transport facilities, are now able to pay more attention in their new plans to agriculture and other directly productive development.

Another noteworthy feature of the new agricultural development plans, especially in the Far East and Latin America, is the increasing recognition of the importance of orienting them toward the nutritional needs of the people. Even in those countries where agricultural plans have been operating for some years, the needs of the consumer were often not adequately taken into account.

The trend toward the centralized co-ordination of planning in different sectors continued in 1955-56, and a number of new central planning bodies have been set up, or the existing ones re-organized, for example, in Brazil, Japan, Malaya, Pakistan and Syria.

The U.N. Reports.—The United Nations Organization in its over-all review in its annual World Economic Survey finds that for all sectors of the world economy there can be little doubt that the economic record of this postwar decade is superior to that of the decade following the First World War. Though the damage and destruction of war were greater by far this time, the recovery and growth of output were more rapid and more widespread. Economic crises generated by the war were more readily overcome, and even long standing problems of imbalance and stagnation yielded in part to the forces of growth.

Nevertheless, the history of the period does not justify untempered optimism; on the contrary, it provides ground for serious concern. In only a few of the under-developed countries has per capita economic growth been consolidated to a point where it may be considered self-cumulating.

The Survey finds that the earth has become capable of supporting a far larger population than ever before. The habitable area of the world has been expanded and the cultivated land made to yield larger quantities of food and of raw materials for industry. Industrial output has made great strides, production at the end of the decade being estimated at more than double the prewar level.

In the under-developed countries expanded networks of transportation and communication have made a beginning towards overcoming the heritage of centuries of economic fragmentation. Increased energy utilization—together with the introduction of modern science and technology—is contributing towards higher productivity. New industries have been established to provide the nucleus for future growth. Increased exports combined with improved terms of trade have raised the capacity to import of most under-developed countries and have laid the basis for further economic development.

Perhaps the most significant advance in the under-developed countries to date, however, lies not so much in the physical expansion of productive capacity per capita as in the evolution of a social climate favorable to economic devolopment.

The growth in output and productivity has also brought some progress in international economic balance. For the first time in a generation trade restrictions are being progressively removed, especially by industrial countries, and the volume of international trade has, since 1948, been rising not only in absolute amount but even in relation to world output. The Survey points out that the terms of trade in the postwar decade have moved in favor of primary producers after a steady deterioration in the nineteen twenties, followed by a catastrophic drop in the thirties.

In the under-developed countries, economic growth—significant as it has been in many cases by prewar standards—has not kept pace with the rate in industrial countries. While agriculture and manufacturing have each expanded at about the same rate in under-developed as in developed countries, the rise in total output has been smaller in the under-developed regions because agriculture, which expanded at a much lower rate than manufacturing in both regions, accounts for a much higher proportion of total output. Population growth, moreover, has been increasingly more rapid in the under-developed than in industrial countries. The combined difference in output and population is reflected in a striking disparity in per capita growth; whereas in the developed countries per capita output has risen about 45 per cent before the war, in the under-developed regions the rise appears to have averaged about five per cent.

European Agriculture.—One of the most detailed statements on agricultural policy for a geographic and economic region was issued by the Organization for European Economic Co-operation (OEEC).[1] The report is entitled "Agricultural Policies in Europe and North America" and was approved by the Ministerial Committee for Agriculture and Food.

In contrast to the war and immediate postwar period, the habit of setting definite production targets for agricultural production is not now very generally applied in these countries. In most cases where specified figures for future production exist, they are elaborated merely as indicators of how production may develop and as guides for the policy to be adopted. The production objectives are mostly formulated in rather vague terms, indicating in most cases an expansion of agricultural production.

Besides policies specifically aimed at increasing production, considerable technical progress has taken place in recent years. The application of modern agricultural techniques, stimulated by increased support from Governments, together with the encouragement given through price support, etc., has caused agricultural output in the OEEC countries as a whole to increase at a rate averaging some four per cent a year from 1949-50 up to 1956. Improvements in agricultural techniques leading to high yields tend to decrease unit costs of production. Furthermore, the introduction of new varieties has in certain cases and regions made it economically possible to substitute new crops (e.g. cotton) for traditional crops (e.g. sugarbeet). However, although per capita consumption of food is going up because of increased purchasing power per head, population is increasing at a lower rate (one per cent a year for the area as a whole), and the increase in consumption has not kept pace with the increase in output for all commodities. Therefore, for some products and in some countries problems of surplus disposal have arisen and seem likely to appear again in the future. Such tendencies have in themselves tended to induce certain shifts in the objectives for production of different commodities.

A few countries still indicate over-all production targets. In the United Kingdom the aim is that agricultural output should be some 60 per cent above prewar output. That means a slight increase above the present level. In Austria the target is to increase agricultural output so as to cover some 90 per cent of the internal food requirements within ten years (at present 82 per cent). Sweden is the only country which has as a long-term objective a decrease in agricultural output to 90 per cent of domestic food requirements (107 per cent at present).

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[1] Members of the OEEC include Austria, Belgium, Denmark, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Sweden, Switzerland, Turkey and the United Kingdom. The United States and Canada although not members of the Organization, participate in its work and Yugoslavia is represented by an observer. Spain participates as a full member in the work of the agricultural bodies of the Organization.

In most countries, however, the aim is to increase agricultural production, either in general or on a selective basis. The type of expansion wanted differs according to the existing market possibilities. In view of current difficulties for products where supplies exceed market requirements, a number of countries try to guide the expansion of production towards those commodities for which the country is now a net importer, for example, France—oil crops; Spain—cotton and wheat; Norway—cereals, fruits and vegetables; Ireland—wheat; Austria—cereals and fats; United Kingdom—beef, mutton and lamb; feedingstuffs and fodder in the United Kingdom, Belgium, Luxembourg, Norway, Italy. The strong efforts which most countries made during and after the war to increase domestic production of coarse grain and feedingstuffs are still generally stressed so far as higher production on grassland is concerned. With regard to coarse grain, Belgium and Denmark have let the internal prices correspond to the lower prices offered from other countries.

In the Mediterranean countries, the aim is generally to increase and improve agricultural production as the main contribution to the economic development of the countries. Simultaneously with an increase in their production of traditional export commodities, especially fruits and vegetables, they aim at increasing production of commodities in deficit on their internal markets (e.g. livestock production in Italy, wheat in Portugal, cereals and cotton in Spain, cereals in Greece) or of commodities for which other Member countries are net importers (e.g. Turkish expansion of wheat and cotton production). Spain and Italy tend to limit their production of rice and sugar to cover internal requirements.

If present production objectives, stimulated by the natural upward trend in productivity, are achieved, it seems that each country would reach a higher rate of self-sufficiency for many agricultural products. The part of total production which is internationally traded would relatively decrease. The Report however states that this would not necessarily mean a decrease in absolute volume of trade, which depends also on future developments of consumption. For the two most important importing countries—Germany and the United Kingdom—it is considered that the absolute volume of import requirements of food may remain, rather stable in the next few years, although it has also been indicated that the increase in imports to Germany realized during recent years may continue.

In addition to a factual review, the examination of the agricultural policies of each of the various countries enabled the Ministerial Committee:

(a) to determine the general guiding principles which, despite various peculiarities arising from production and economic and social conditions, characterize the agricultural policies of the Member countries as a whole;

(b) to stress the topical interest of the main problems of structure or method raised by the development of European agriculture in the context of general economic expansion;

(c) To agree unanimously upon a definition of the aims of national policies and on the principles which should serve as a guide in the realization of those aims, in order to facilitate the organization of the European agricultural market;

(*d*) to adopt a resolution that consultations on those problems which appear most important from the point of view of European co-operation should be organized as quickly as possible to ensure the gradual co-ordination of measures to be taken at national level and within the Organization.

The Ministerial Committee considered that the national agricultural policies should tend:

(i) to ensure that food and agricultural products are produced at the lowest possible cost;

(ii) to ensure an adequate standard of living in agriculture, the main factor being an increase in income per man employed in agriculture.

Among the actions most likely to contribute towards an immediate increase in individual income are the continuation and intensification of the efforts already undertaken concerning productivity. The Ministers of Agriculture, wishing to ensure that all the activities entrusted to them by the Organization should be dealt with in a co-ordinated manner have agreed to devote the the largest part of their program for the coming years to a limited number of projects in two important sectors:

(a) marketing, distribution and consumption;

(b) advisory services and vocational training, particularly with regard to the problems of management and labor organization on the farms.

The Ministerial Committee also laid the foundations of collective action to remedy the lack of flexibility of those price and income support measures which are commonly applied (including foreign trade regulations); it decided to organize consultations which, in addition to their informative value, will give Member and Associated countries the opportunity to express their opinions on measures either taken or envisaged, and to study means of gradually co-ordinating agricultural polices.

Trends in Latin America.—Agricultural activities in Latin America followed two divergent trends in 1954-55. Conditions favorable to the sector producing for the domestic market—which accounts for most of the agricultural output—were accompanied by others that hampered the normal development of production for export. As internal demand for foodstuffs and raw materials expanded with the growth of the population, as income rose and urbanization proceeded apace, a situation propitious to agriculture was created and Governments infused new energy into development policies aimed at self-sufficiency. On the other hand, such factors as the downward movement of world prices and the accumulation of staple export surpluses—both inside and outside the region—militated against the successful marketing of such crops. Nevertheless, the Economic Survey of Latin America states that thanks to the measures adopted by a number of Governments—such as minimum prices and more advantageous exchange rates—the Latin American farmer did not bear the whole brunt of the decline in the world market for agricultural commodities. Moreover, the fall in prices took place after crops were sown, so that, apart from sugar, production was not affected.

After a period of hesitant growth following the Second World War, Latin America's agricultural production recovered somewhat in 1954-55, the rate of growth slightly exceeding the average for the previous ten years. As a result of good weather in the main agricultural areas, the volume of production reached a new peak, rather more than five per cent above the 1953-54 level and 18 per cent higher than that of 1949-50.

Fortuitous influences rather than reconstruction policies caused the composition of agricultural production to undergo fairly significant modifications, which affected the region's domestic supplies more than production for export.

Middle East Agricultural Policies.—The U.N. in its review of the Middle East found that during 1954 and 1955 agriculture continued to receive growing attention in economic policy of Middle East countries. In recent development programs, agriculture has been allocated large shares of the funds—in some cases the largest share—because in most of these countries, promotion of agriculture involves the construction of costly irrigation projects. Available budget estimates indicate that, in general, public investment in agriculture has risen considerably during this period.

A main reason for the attention given to expanding agricultural production in the region, and also to developing intraregional trade, has been to limit the drain on currency resources for imports of agricultural products from outside the region in order to maximize the funds available for the purchase of equipment for economic development.

However, there was little evidence of any tendency to plan agricultural development within a framework of international specialization; on the contrary, the achievement of greater self-sufficiency by the encouragement of substitutions for imports continued to be a common trend. Though the trade and payments agreement concluded in 1953 among the Arab countries provides for customs exemptions and reductions for agricultural products originating in the participating countries and thus implies a certain relaxation of the principle of autarky in commercial policy and reorientation towards greater specialization, a corresponding adjustment in agricultural policies has not taken place, even in the countries which signed the agreements. On the contrary, as the FAO points out the most striking trend emerging in agricultural policies in recent years is the growing tendency toward self-sufficiency.

Thus Egypt, which still strives to attain self-sufficiency in wheat by the device of minimum acreage prescriptions, in June 1954 permitted the growing of tobacco, which had formerly been prohibited, all tobacco being imported chiefly from Greece and Turkey. Although in Lebanon self-sufficiency in the principal agricultural products is obviously impossible, agricultural policy encourages the production of commodities which are imported at present. Israeli production of cotton—formerly all imported—met an important part of domestic demand in 1955 and the programs now under way attempt to ensure complete self-sufficiency in this commodity.

Apart from the tendency towards self-sufficiency, the agricultural policies pursued by the individual countries of the region have other common traits, such as the relatively slight emphasis given to livestock development. On the other hand, there are some national differences in agricultural policy, both with regard to targets and to the methods employed for reaching them. Thus, an active policy to bring about more equal land distribution has theretofore been confined mainly to Egypt, while measures to mechanize agriculture on a large scale were carried out particularly in Turkey. Price supports have been characteristic chiefly of the agricultural policies of Egypt and Turkey.

Some improvement in methods of agricultural production has been achieved in the last two years in the Middle East, though in relation to what remains to be done in this field, the achievement must be considered modest.

Agricultural Developments in the Far East.—Agricultural production in the Far East has been rising steadily since World War II. In the years 1955-56 food production reached an all-time high that is nearly one-fifth over prewar. Production of food grains is estimated to be rather larger than in the previous season. Poor crops in Indonesia and parts of Pakistan and Ceylon were offset by large rice crops in other countries, including a postwar record in Japan, where free market prices fell even below government prices. Notable gains were also made in tea, some fibers and rubber. However, the increase in overall agricultural production has not been sufficient to catch up with the steady growth of population in the last 20 years, so that on a per caput basis production has not recovered the prewar level. Figures of production and population are particularly unreliable in many parts of this region but it appears that per caput food production in the region as a whole (excluding China) in the last few years has remained virtually unchanged at about ten per cent less than the prewar level.

The FAO reports that several important new development plans were begun in 1955-56. India's first five-year plan was completed with the harvesting of the 1955-56 crop, and a second plan covering the period 1956-57-1960-61 has now gone into operation. Many of the targets for agricultural production under the first plan were reached ahead of schedule.

New development plans have also been begun in a number of other Far Eastern countries. Ceylon's second six-year plan, for 1954-55-1959-60, was announced in July 1955. It is in part a continuation of projects begun under the first plan and the basic objectives for agriculture are unchanged. In Pakistan, where a National Economic Council at ministerial level, with the Prime Minister as Chairman, was set up in early 1956, a draft of a new five-year plan has just been presented.

In Japan a new economic plan for 1955-60 was submitted in February 1956, with a target of an annual increase in agricultural, forestry and fisheries production of 3.2 per cent. Indonesia's draft five-year plan for agriculture was announced in May 1955 and is understood to be in the process of final revision. In Burma and Viet-Nam new draft plans for agriculture are reported to aim at increasing and diversifying agricultural production and improving paddy yields.

It is of interest to note that the FAO in its review of the population and food supplies in this region is of the opinion that limitations of agricultural potentialities are not believed to constitute an insuperable obstacle to the solution of this problem. On the contrary, the possibilities for increasing agricultural production are considerable, but their realization requires breaking the vicious circle of poverty, ignorance, and low productivity. Governments have made beginnings in this task in their over-all development programs, including education and health. Important efforts are being made not only to provide better transport, more irrigation, fertilizer and farm machinery, but also to impart knowledge of elements of good nutrition and better methods of production to the rural masses. But the results so far achieved are meagre in relation to the size of the problem and far greater efforts are needed. In this, programs of technical assistance and the provision of capital from external sources have a great role to play.

SPECIAL SENATE COMMITTEE TO STUDY LAND USE IN CANADA

The Senate, on January 30, 1957, agreed to a motion

> That a Special Committee of the Senate be appointed to consider and report on land use in Canada and what should be done to ensure that our land resources are most effectively utilized for the benefit of the Canadian economy and the Canadian people, and in particular, to increase both agricultural production and the incomes of those engaged in it . . .

In introducing the motion the Leader of the Government in the Senate said:

> There can be no doubt that any comprehensive study of land use will have to range widely across the Canadian scene, but much of the information that the proposed committee will take under advisement will come from the provincial departments of agriculture. The pattern of land use varies widely . . . from province to province.

He added that

> It is . . . the challenging task of this proposed Senate Committee (a) to make a broad survey of land use in Canada, (b) to focus public

> attention on all aspects of this problem, and (c) to invite the best minds in the country to set out their views as to the appropriate solutions, particularly as these would benefit the farmer and tend to raise farm incomes.

The Prime Minister, in a speech delivered in Toronto on November 20, 1956 drew attention to the land use problem. He said:

> Now—at least in Eastern Canada—the area of our arable lands cannot be substantially increased. On the contrary, there is a not important portion of those lands now included in the farm area which is quite unfit for ordinary agricultural uses and on which it is deplorable, and in this country unnecessary, to allow back-breaking work to be continued when it is so obvious that it cannot yield a decent family livelihood to those who engage in that work. I say that should not be continued, because we are blessed by Providence in this country with such great and valuable resources that any man's consistent arduous work could and should provide him with adequate returns to secure for himself and his dependents a decent livelihood, provided that work is applied to the right job in the appropriate setting.
>
> I am convinced that some of the land in Eastern Canada that hard-working Canadians are trying to use as farms should go back to forest and water conservation uses and those attempting to live on them resettled in more rewarding surroundings.

PUBLICATIONS OF THE ECONOMICS DIVISION

Directory of Co-operative Associations in Canada, 1954. Ottawa. November 1956, pp. 110

The latest revision of the Directory of Co-operative Associations in Canada. Previous directories were published in 1936, 1945 and 1949.

"This Directory lists all co-operative marketing purchasing, service, production, insurance and manufacturing associations known, by the Economics Division, to exist. Omitted from this Directory are credit unions, mutual companies and non-business associations such as community halls, livestock improvement associations, agricultural societies, farmers' institutes and associations organized for educational and social purposes. Of the co-operatives listed, some may be inactive at the present but all those known to have been dissolved have been excluded."

Co-operation in Canada, 1955. Kristjanson, B. H. Processed bul., Ottawa, December 1956, pp. 23.

The twenty-fourth annual summary of **Co-operation in Canada.** Headed **Co-operation in Canada, 1955**, Part I deals with **Co-operative Developments; Membership; Volume of Business; Marketing of Farm Products; Purchasing and Merchandising; Financial structure of Marketing and Purchasing Co-operatives; Service Co-operatives; Fishermen's Co-operatives;** and **Farmers' Mutual Fire Insurance.** Part II is concerned with **Co-operative wholesales in Canada.** It reviews their **Financial Structure** and their **Sales Volume, 1955.**

OTHER PUBLICATIONS

Social Characteristics of Urban and Rural Communities 1950.—Duncan, Otis Dudley and Reiss Jr. Albert J. John Wiley & Sons, Inc., New York. 1956. pp. XVIII+421.

Before the 1950 Census was taken in the U.S.A. the Social Science Research Council, in co-operation with the Bureau of the Census of the U.S. Department of Commerce organized a project to analyze the tremendous mass of detailed information about the characteristics and economic activities of the population of the United States. A series of monographs has resulted from this far-sighted project of which this is the fourth.

New census procedures used in 1950 made it possible to improve the community units by which the population data were tabulated. These included the delineation of urbanized areas, standard metropolitan areas and unincorporated places of 1000 inhabitants or more.

Although the Bureau of the Census did not operationally define the concept of community, the writers of this monograph did so and have stated it in the preface as "In general we mean to interpret the concept of community, as it has been formulated in human ecology, to denote the territorially oriented complex of human relationships through which a more or less localized population meets its sustenance and residence requirements."

This definition of community will probably not be acceptable to all social scientists, particularly those concerned with the study of rural life but it does provide a basic and rational explanation for the monograph which chiefly concerns itself with comparing classes and categories of urban communities rather than determining boundaries and characteristics of any particular community.

The general hypothesis on which the monograph is based is that differentiation among communities in one or another of the basic characteristics of community size, location with respect to dominant centers, type of functional specialization, growth and stability and regional context (which are selected as dependent variables) is associated with variation in other characteristics (independent variables) which include such population characteristics as age, sex, race-nativity and family status composition; measures of socio-economic level and economic activities; and the distribution and movement of population in space.

Throughout the monograph concepts and research procedures are made explicit and the reader is warned that "it was necessary to define certain concepts in ways not wholly consistent with official Bureau of the Census usage, and even to vary the technical meaning of these concepts somewhat from chapter to chapter."

Recognition of these methodological problems should be kept in mind especially when interpreting chapter 13 which deals with Urban Influences on Rural Population Characteristics. In summing up this particular chapter the authors point out that "blanket characterizations of the rural population tend to be less accurate to the degree that the rural population falls into the area of dominance of urban centres". Since the analysis in this chapter is based on a classification of all counties according to metropolitan and non-metropolitan location and size of the largest city in the county, it would seem probable that the conclusions concerning urban influence may to a large extent depend on the methodological procedures.

This monograph is well written in that a large mass of detailed information has been handled in a systematic way. Apart from providing an analysis of census statistics it goes a long way in fulfilling its major purpose which is to indicate ways in which the new 1950 census procedures heighten the usefulness of census data for research in community structure.

Science and Economic Development.—Meier, Richard L. The Technology Press of Massachusetts Institute of Technology and John Wiley & Sons, Inc., New York. 1956. pp XVII+266.

An industrial scientist with additional graduate work in economics and sociology is the author. The book does to some extent reflect this balance. The author traces out a new path for economic development which is suggested and shaped by postwar discoveries in science and technology. As Dr. Meier indicates in the preface the book "shows a way to adequate levels of living, available to everyone, which is still incomplete but can nevertheless be rapidly extended and improved by specific kinds of research." The four major chapters in the book cover The Present World Predicament; New Foods; New Fuels; and New Patterns of Living.

This book is provocative in its approach to the man-land ratio and to the race between population and food. Lack of space prevents an adequate discussion of the author's approach or acceptability of conclusions. But such statements as the following will result in considerable controversy. "Simple calculations show that the earth can probably provide comfort and convenience for upwards of fifty billions of persons—if the surface of the tropical oceans were to be exploited. Such a possibility does not suggest that this is a desirable pattern for the future, nor does it say anything about the feasibility of getting from where we are now to a general world-wide state of adequacy, regardless of ultimate numbers."

Economic Analysis.—Whittaker, Edmund. John Wiley & Sons, Inc., New York. 1956. pp. XIII+460.

The author rightly points out that the book furnishes an introduction to economic analysis and examines some of its applications to the present day economy. Although designed as a text book for undergraduate students it should be of interest to the general reader. The principles and procedures of economic analysis are examined in Part I of the book. Part 2 investigates various facets of the economy from the viewpoint of economic theory. It covers such subjects as consumption, time preferences and investment; problems of production, size, product choice, location; price; national income; distribution of income, and economic progress.

Agriculture and Industry Relative Income.—Bellerby, J. R. in association with G. R. Allen, A. J. Boreham, D. K. Britton, G. Gutch, H. A. Rhee, F. D. W. Taylor and F. P. Thomson, Macmillan & Co., London and St. Martin's Press, New York, 1956. pp. xii+369.

The authors report on a detailed survey of the income ratio between agriculture and industry in the United Kingdom, Canada, Ireland, the United States, France, the Netherlands and Eire, and a less detailed survey of some other countries.

Their enquiries are concerned principally with: 1) the average historical level of the income ratio in selected countries; 2) the determination and measure of the importance of the various causes of the generally low income ratio; 3) modifications in the strength of these causes in the new postwar conditions; 4) new factors affecting the ratio; and 5) the principles that should guide public policy in arbitrary decisions to change the income ratio.

The ratio discussed by the writers is "the incentive income ratio" which relates "the farmer's incentive income" to the incentive income, on a man-equivalent basis, of all persons engaged on their own account or as employees in non-farm enterprises. In comparing the economic rewards of both types of producers they exclude returns to property and retain only the returns for human effort and enterprise.

The "Introductory" gives a concise description of the subject of research, reviews the economic theory which underlies the income problems, and discusses the causes of income disparity.

Part II is concerned with "Statistical Evidence" and forms the core and longer part of the book. Of the ten chapters dealing with individual countries four discuss the income relationship between agriculture and industry in Canada. This relatively long discussion of the Canadian historical income ratio is made possible by "the excellence of the regional statistics of Canada", "differences in provincial income ratios" which "must be ascribed to local conditions" because the broad economic setting which arises from national policies is common to all parts of the country, and by the "extensive migration to and from agriculture" during the twentieth century.

The period examined, for the study of the income incentive ratio in Canada as a whole, is the 1926-45 period. The chapter on "Canada: Introductory" is followed by supporting chapters on "The Prairie Provinces," "The Central Provinces" and "Canada: Conclusions and Provincial Comparisons". Unfortunately, these latter chapters do not extend the statistical analysis to the postwar period and some statistical tables carry the presentation of the relevant data only as far as 1937. The Canadian reader would be especially interested in an analysis of the changes in income ratios in the postwar period.

The review of the statistical evidence is concluded with chapters on "Relative Wages" and "Relative Retail Prices". The writers consider the ratio of farm to non-farm wages "purely from the point of view of its use as an index of the level of the 'incentive income ratio' in countries where this cannot be measured directly". This, however, may not be the only reason for doing so. Most of the countries covered being the same as those studied in the general review of the statistical evidence the reader may well assume that, because of the paucity of relevant statistics on income, the researchers had to make a study of relative wages to support their analysis of relative income. The difference between rural and urban retail prices is one of the principal causes of income disparity and it lends itself readily to measurement. However, pertinent information is available for only a few countries and the writers had to confine their enquiry into "Relative Retail Prices" to the United Kingdom, Canada and Eire.

Part III, entitled "Appraisal", supplies a synthesis and a critical appraisal of the findings. The interpretation of these findings is strengthened by an analysis of the causes of the low income ratio during the economic depression of the thirties and in times of fair trade, and by a consideration of the prospects under prosperity and depression conditions. This appraisal ends with a search for principles and methods. The authors suggest four principal conditions for the prevention of a persistent decline in the incentive income ratio: 1) the avoidance of world depression; 2) the avoidance of an accumulation of world stocks of agricultural products; 3) an increase in the occupational mobility of members of farm families; and 4) the development of agriculture as a profession. They realize that the guarantee of farm prices should also be mentioned, but only as a technical aid. They caution the policy makers against the fixing of prices which would give to the farmers returns greater than their supply prices. This policy would strengthen the trends towards overcrowding and over-production in agriculture, undermine the price structure itself, and tend to perpetuate the fundamental causes of agricultural poverty.

The book is supplemented with four Appendices which should be especially useful to research workers. They include research findings on "Relative Skill", a review of the "Marginal Productivity Theory of Distribution", "Supplementary Series on Numbers Engaged in Agriculture", and a list of "Enquiry Papers" used in conducting the enquiry on income ratios.

THE ECONOMIC ANNALIST

A BIMONTHLY REVIEW OF AGRICULTURAL BUSINESS

MARKETING SERVICE, ECONOMICS DIVISION
J. F. BOOTH, Chief

APRIL 1957 Vol. XXVII No. 2

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ANNUAL AND MONTHLY INDEX NUMBERS

Wholesale Prices, Farm Prices and Living Cost Indexes

Year and Month	General Wholesale Price	Wholesale Prices of Canadian Farm Products[a]			Farm Prices of Agricultural Products[b]	Prices of Commodities and Services used by Farmers		Consumer Price		Industrial Production
		Total[b]	Field[b]	Animal		Composite[c]	Equipment and Materials[d]	Total	Food	
	1935–39=100							1949=100		1935–39=100
1913..........	83·4	....	....	....	....	....	85·4	49·2	44·4	....
1914..........	85·4	....	....	....	....	85·3	90·2	49·6	46·0	....
1915..........	91·8	....	....	....	....	91·6	96·9	50·3	46·8	....
1916..........	109·8	....	....	....	....	100·5	101·7	54·2	51·8	....
1917..........	148·9	....	....	....	....	140·5	140·7	63·7	66·9	....
1918..........	166·0	....	....	....	....	160·2	164·1	72·0	76·9	....
1919..........	174·7	....	....	....	....	167·9	169·1	78·8	82·2	....
1920..........	203·2	....	....	....	....	186·5	190·1	90·5	94·4	....
1921..........	143·4	....	....	....	....	152·5	147·4	80·9	72·5	....
1922..........	126·8	....	....	....	....	134·1	124·6	74·9	61·5	....
1923..........	127·7	....	....	....	....	130·6	118·3	75·2	61·9	....
1924..........	129·5	....	....	....	....	131·9	122·3	74·0	60·7	....
1925..........	133·8	....	....	....	....	131·8	123·2	74·6	63·4	....
1926..........	130·3	144·4	158·5	130·2	....	130·6	119·9	75·9	66·6	....
1927..........	127·3	138·6	149·4	127·8	....	131·2	119·9	74·6	65·3	....
1928..........	125·6	136·3	134·3	138·2	....	129·3	118·3	75·0	65·6	....
1929..........	124·6	140·8	137·2	144·4	....	127·9	117·6	75·8	67·1	....
1930..........	112·9	119·5	105·8	133·3	....	117·0	105·6	75·3	65·6	....
1931..........	94·0	78·9	65·0	92·7	....	100·9	92·2	67·9	51·4	....
1932..........	86·9	65·5	60·4	70·5	....	93·3	89·3	61·7	42·8	....
1933..........	87·4	69·3	69·3	69·2	....	89·8	88·8	58·8	42·3	....
1934..........	93·4	83·5	80·5	86·5	....	95·5	96·8	59·6	46·2	....
1935..........	94·4	89·2	84·4	94·1	88·0	95·4	95·6	59·9	47·2	85·6
1936..........	96·8	97·9	102·2	93·7	96·9	98·1	98·7	61·1	48·8	94·6
1937..........	107·7	117·4	128·9	106·0	119·7	105·3	108·4	63·0	51·4	108·0
1938..........	102·0	102·9	100·9	104·8	105·0	101·7	101·2	63·7	51·7	102·0
1939..........	99·2	92·6	83·7	101·5	91·8	99·3	95·7	63·2	50·2	109·7
1940..........	108·0	96·1	85·4	106·7	96·8	106·8	101·8	65·7	52·6	131·4
1941..........	116·4	106·6	88·9	124·4	110·2	116·1	107·8	69·6	57·9	164·8
1942..........	123·0	127·1	109·7	144·6	133·1	131·6	119·2	72·9	63·4	195·7
1943..........	127·9	145·4	129·0	161·8	157·8	143·4	122·4	74·2	65·2	208·5
1944..........	130·6	155·3	144·5	166·1	172·4	148·0	126·0	74·6	65·5	212·4
1945..........	132·1	166·4	162·5	170·2	185·7	152·1	125·9	75·0	66·3	187·2
1946..........	138·9	179·5	177·9	181·2	204·1	157·0	128·0	77·5	70·0	171·9
1947..........	163·3	192·2	184·1	200·2	215·8	170·4	139·5	84·8	79·5	187·8
1948..........	193·4	232·1	200·6	263·7	255·8	197·6	173·1	97·0	97·5	196·3
1949..........	198·3	228·7	191·9	265·4	255·4	204·1	180·3	100·0	100·0	199·6
1950..........	211·2	236·7	191·9	281·4	260·8	210·4	189·9	102·9	102·6	211·5
1951..........	240·2	268·6	200·4	336·9	296·8	230·0	206·0	113·7	117·0	226·5
1952..........	226·0	250·2	223·0	277·5	274·4	243·1	215·8	116·5	116·8	233·0
1953..........	220·7	221·6	179·4	263·8	250·4	234·8	207·4	115·5	112·6	248·4
1954..........	217·0	213·6	170·9	256·2	234·8	237·2	203·3	116·2	112·2	244·6
1955..........	218·9	209·7	174·4	245·1	228·5	....	....	116·4	112·1	265·8
1956..........	....	....	....	....	....	....	....	....	....	....
1956										
July..........	226·6	230·5	204·7	256·4	243·4	....	....	118·5	114·4	292·9
August.......	227·0	214·4	171·1	257·6	232·5	255·9	210·7	119·1	115·9	287·4
Sept..........	227·4	209·8	160·3	259·3	229·7	....	....	119·0	115·5	288·7
Oct..........	227·1	208·0	159·9	256·0	227·9	....	....	119·8	117·4	289·6
Nov..........	226·6	209·4	163·1	255·7	225·7	....	....	120·3	117·9	292·0
Dec..........	228·1	210·3	164·4	256·2	225·6	....	....	120·4	117·5	291·1
1957										
Jan..........	229·4	211·6	166·0	257·2	228·0	247·0	212·3	120.3	117.1	289·8
Feb..........	228·4	210·1	161·3	259·0	....	....	....	120·5	117·2	291·8
Mar..........	228·4	206·8	160·2	253·4	....	....	....	120·5	116·4	....
April........	228·4	....	....	....	....	....	....	120·9	116·7	....
May..........	....	....	....	....	....	....	....	....	....	....
June..........	....	....	....	....	....	....	....	....	....	....

Source:—Dominion Bureau of Statistics, Ottawa.

(a) Prices at terminal markets.

(b) Indexes August 1955—July 1956 include final barley and oats payments announced November 15 and 29, 1956.

(c) Exclusive of living costs. Includes farm implements, building materials, gasoline, oil, greases, feed, fertilizer, binder twine, seed, hardware, tax rates, interest rates and farm wage rates.

(d) Differs from composite index by exclusion of tax rates, interest rates, and farm wage rates.

THE ECONOMIC SITUATION

Investment.—Figures published in "Private and Public Investment in Canada, Outlook 1957", a report prepared by the Canada Department of Trade and Commerce, indicate that planned capital expenditures of Canadian business, institutions, governments and housebuilders, in 1957, amount to about $8.5 billion. These expenditures represent an increase of eight per cent over the record $7.9 billion spent in 1956. The expected rate of increase is substantially less than the rate achieved in 1956 when capital outlays, in volume terms, were 17 per cent greater than in 1955. A decline in housebuilding from the very high levels of 1955 and 1956 is the major contributor to the slowing down in the upward trend in investment.

The 1957 capital investment program represents, in large part, the completion of expansion plans initiated in 1955 and 1956. The increase in investment spending in 1955 arose largely from a sharp increase in world demand for the products of our resource-based industries. In order to maintain production facilities in line with the increase in needs, many industries initiated major expansion programs. These programs generated new demands on other material producing industries and on the fuel and power and transportation industries which also began to expand their facilities. As a result, the Canadian economy in 1956 witnessed the most rapid increase in demand for capital goods since 1947, the demand for labor and certain materials exceeding the supply. Over-all capital outlays, in value terms, fell slightly below intentions. Many individual projects fell considerably short of spending intentions, particularly in such sectors as manufacturing, trade and institutions.

Foreign Trade.—Canada's foreign commodity trade continued to expand in January 1957. Exports increased nearly 11 per cent in value and imports almost 14 per cent over January 1956. These advances carried both exports and imports to new peak values for the month of January, the greater rise in imports than in exports resulting in a larger import surplus.

Total exports were valued at $404.1 million, or $38.7 million more than the $365.4 million figure for January 1956. Shipments to the United Kingdom decreased from $73 million to $63.8 million, shipments to other Commonwealth countries increased from $18.5 million to $21.7 million, those to the United States from $217.3 million to $219 million, and shipments to other foreign countries from $56.6 million to $99.6 million.

Commodity imports are estimated at $459.9 million for January 1957, an increase of $56.2 million from $403.7 million in January 1956. Most of the increase was in purchases from the United States which rose to $348.4 million from $294.5 million in January a year earlier, an increase of 18.2 per cent. Imports from the United Kingdom rose from $33.1 million to $35.6 million and imports from other Commonwealth countries from $12.9 million to $16.1 million; imports from "other foreign countries" declined from $63.2 million to $59.8 million.

Foreign trade in January 1957 resulted in an estimated surplus of $55.8 million compared with $38.2 million in January last year. The import surplus with the United States rose sharply from $77.2 million to $129.4 million and the export surplus with the United Kingdom declined from $39.8 million to $28.2 million.

Prices.—Canada's consumer price index (1949=100) moved from 120.3 to 120.5 between January and February 1957, the third month of relatively little change in the index. The February index was 3.5 per cent above the level a year previously.

The general wholesale price index (1935-39=100) from 222.0 in January 1956 to 228.1 in December 1956 and 229.4 in January 1957. The vegetable products index from 200.3 to 200.5 mainly as a result of higher prices for sugar, potatoes, onions, lemons and No. 2 Ontario peas that outweighed lower prices for raw rubber, cocoa beans and cocoa butter. The animal products index rose from 235.8 to 237.6; increased prices for calves, veal carcasses, calf skins and pork products more than counter-balanced decreased prices for grayfish oil, poultry, cheese and eggs.

The index of farm prices of argicultural products (1935-39=100) for December 1956 equalled the revised estimate of 225.8 for November of the same year. Prices remained fairly steady for grains, livestock and dairy products. Higher prices for potatoes offset lower prices for poultry and eggs.

Farm Income.—According to preliminary estimates prepared by the Agriculture Division of the D.B.S., cash income from the sale of farm products and from participation payments in 1956 amounted to $2,655.9 million, 12.9 per cent more than the $2,352.6 million realized in 1955 and 10.9 per cent above the $2,395.3 million in 1954. The all-time high cash income estimate reached $2,849.3 million in 1952. The most important contributors to the gain in farm cash income were the increased returns from sales of grains, cattle, hogs, poultry, eggs and larger participation payments.

Labor Income.—Canadian labor income reached an all-time high of $14,284 million in 1956, an increase of 11.5 per cent over the $12,810 million realized in 1955. In December 1956, labor income rose to $1,248 million from $1,117 million in December 1955, an increase of nearly 12 per cent.

Slightly more than half of the 11.5 per cent gain in labor income in 1956 was attributable to an increase in employment. In 1956 the average number of paid workers with jobs was 4,338,000, compared with 4,101,000 in 1955. The per capita weekly earnings in the major non-agricultural industries rose to $64.19 from $60.87 in 1955. Paid workers numbered 4,458,000 in December 1956, compared with 4,230,000 in December 1955 and average weekly earnings amounted to $66.14 compared with $62.02.

Wheat, Barley, Flaxseed.—Overseas export clearances of Canadian wheat during the week ending February 20, 1957 fell to 1.5 million bushels from 3.3 million in the corresponding week of February 1956 but barley clearance increased to 1.1 million bushels from 0.4 million and flaxseed to 0.5 million bushels from 0.1 million bushels. Clearances of the three grains were much larger in the August 1-February 20 period of this year than in the corresponding period of the previous year; wheat clearances rose to 131.6 million bushels from 106.9 million, barley clearances to 35.6 million from 13.9 million and flaxseed to 12.2 million bushels from 8.6 million bushels.

Prairie farmers marketed more wheat, barley and flaxseed in the week ending February 20, 1957 and in the period from August 1, 1956 to February 20, 1957 than in the preceding corresponding periods. Totals for the week, in million bushels and figures for 1956 in brackets, were as follows: wheat, 7.0 (2.5); barley, 1.5 (.06); and flaxseed 0.4 (0.06). Cumulative totals were: wheat, 176.8 (124.6); barley, 74.8 (53.9); and flaxseed, 20.2 (13.8).

Visible supplies of Canadian wheat in all North American positions on February 20, 1957 amounted to 361.8 million bushels, compared with 358.8 million a week previously and 353.4 million bushels a year before.

DAIRY FARM ORGANIZATION IN THE LOWER FRASER VALLEY OF BRITISH COLUMBIA

Part I

R. H. CAMPBELL

Dairy farmers of the Lower Fraser Valley make adjustments in the organization and operation of their farms in order to meet the increasing competition for labor which results from the ever-expanding industrial development of the Vancouver area. Many workers like wage and working conditions in manufacturing and other industries, and urban life better than rural life. Farmers thus find it more and more difficult to attract and retain an adequate supply of labor.

To cope with this situation, farmers adjust their organization and operations in such a manner as to secure a greater output with a reduced labor force. They do this through the use of better production practices and the utilization of more labor-saving machinery and equipment.

As economic study in 1954 of 65 dairy farms, in this area—the municipalities of Matsqui, Sumas and Chilliwack—supplies a comparative analysis of the types of organization, expenses, returns, and of some of the physical inputs and outputs on low and high income farms.

All farms were large enough to provide full time work for at least one man. Five operators worked off the farm part of the year, but not because the farms were too small to keep their operators fully employed. There were at least ten cows and 19 acres of improved land on each farm. Except for one farm, more than 55 per cent of the current farm receipts were derived from the dairy enterprise. Small part-time farms and those on which the dairy enterprise was small or relatively unimportant as a source of receipts were excluded. In general, the farms selected may be described as commercial farms on which the dairy enterprise was most important.

For purposes of analysis the farms were classified according to operator's labor income into high, medium and low income groups containing 21, 22 and 22 farms, respectively. Averages derived from these groups provide the basis for the following comparative analysis of farm organization and operations at different levels of returns for the operator's labor and management.

Farm Capital.—A large capital investment is required for dairy farming in the Lower Fraser Valley, regardless of the income obtained. However, total

Table 1.—Average Farm Capital, 65 Dairy Farms, Lower Fraser Valley, 1954

—	Operator's Labor Income			All farms
	High	Medium	Low	
	— dollars per farm —			
Land[a]—improved	20,973	13,853	15,633	16,756
—unimproved	338	254	807	468
Buildings[a]—house	4,099	4,167	3,158	3,803
—other	6,648	4,495	7,733	6,286
Equipment—dairy	479	353	543	458
—general	2,960	2,258	2,807	2,671
—power	3,278	2,560	3,097	2,974
Livestock—dairy	9,063	7,591	7,298	7,967
—other	474	199	153	273
Crops	2,052	912	1,091	1,341
Purchased feed	47	100	44	64
Seed and fertilizer	22	9	17	16
Total	**50,433**	**36,751**	**42,381**	**43,077**

[a] Excludes the value of rented land and buildings.

investment did not vary directly with income; it was largest on the high income farms but smaller on the medium income than on the low income farms (Table 1).

Land accounted for most of the differences in total investment, particularly on the high income farms. The smallest investment in land, buildings and equipment occurred on the medium income farms. Low income farms had nearly the same investment in buildings and equipment as high income farms. The investment in livestock was largest on the high income farms but only slightly less on low income than on medium income farms.

The proportion of total capital invested in the main types of physical assets was nearly the same for each income group, differing by very little (less than three per cent) from the averages for all farms. These averages were 40 per cent for land, 24 per cent for buildings, 19 per cent for livestock, 14 per cent for equipment and three per cent for crops, purchased feed, seed and fertilizer. However, the percentage of total capital in both buildings and equipment increased slightly as operator's labor income decreased. The largest percentage of total capital in land was on high income farms and the largest percentage in livestock on medium income farms, but neither of these percentages showed any relationship to operator's labor income.

Land Use.—The acres of improved land used for hay, silage, other crops and pasture are given in the first part of Table 2. Two different crops, mainly grass hay and silage, were harvested from the same field on many farms. Consequently, some of the improved acreage is counted twice under different crops. Therefore, the actual acreage under cultivation is equal to the total crop acres less the double-cropped acreage.

The cultivated acreage on high income farms was about 50 per cent larger than on either the medium or low income farms. The acreage double-cropped also was larger on high income farms, although it was a slightly smaller proportion of the cultivated acreage.

Most of the cultivated acreage on each group of farms was used to grow forage crops for hay, silage and pasture. About 75 per cent of the cultivated land on high and low income farms, and 87 per cent on medium income farms was occupied by these crops. The acreages of grass hay, grass silage and pasture were all larger on high income farms than on farms in the other income groups. Low income farms had practically the same acreage in grass hay as medium income farms but somewhat less in grass silage and pasture. Corn provided most of the other silage although more green oats were cut for silage on low income than on other farms. Grain was grown mainly on the high income farms. Most of it consisted of oats grown either alone or as a nurse crop for grass and legume mixtures used in re-seeding hay and pasture land.

A fresh or canning vegetable was grown as a cash crop on about one-third of the farms in each income group. Potatoes and canning peas accounted for most of the larger acreage of vegetables on high income farms. Canning corn was the main vegetable crop on medium and low income farms.

Small fruit occupied only a small amount of land. It was grown on about one-quarter of the farms, mainly in the medium and low income groups. The largest acreage, divided almost equally between raspberries and strawberries, occurred on medium income farms. Nearly all of the small fruit on high and low income farms was raspberries.

Some farms had small orchards to provide fruit for home use but tree fruits were not grown on a commercial scale. However, small quantities in excess of home use requirements were sold on a few farms.

In general, land use was less restricted on high income than on other farms. The larger amount of cultivated land on high income farms enabled the introduction of a larger acreage of grain and cash crops. On medium and low income farms, after providing for the necessary acreage of hay, silage and pasture required for the dairy herd, only a small amount of land was available for other crops. The larger acreage of small fruit on medium income farms may indicate some attempt at overcoming this limitation through a more intensive use of the land available for cash crop production.

There is practically no possibility of increasing the cultivated acreage on high and medium income farms where nearly all land in the farm unit is already improved. However, some additional land could be brought under cultivation on low income farms by clearing the unimproved land that is potentially arable.

Table 2.—Average Land Use, 65 Dairy Farms, Lower Fraser Valley, 1954[a]

	Operator's Labor Income			All farms
	High	Medium	Low	
	— acres per farm —			
Mixed grass hay	24.0	17.0	17.6	19.5
Other hay	2.7	1.4	2.6	2.2
Grain	10.4	1.3	1.9	4.4
Grass silage	13.9	11.1	9.7	11.5
Other silage	1.6	2.4	3.8	2.7
Vegetables	5.1	1.1	1.7	2.5
Small fruit	0.2	0.6	0.3	0.4
Tree fruit	0.1	0.2	1.0	0.5
Other cash crops	1.2	[b]	1.3	0.8
Other crops	0.1	0.2	1.1	0.5
Pasture	32.8	24.4	20.3	25.7
Total crop acres	**92.1**	**59.7**	**61.3**	**70.7**
Double-cropped:				
Hay and silage	9.4	8.1	9.2	8.9
Pasture and silage	1.4	1.1	—	0.3
Other	2.8	0.5	1.2	1.5
Total	**13.6**	**9.7**	**10.4**	**11.2**
Total cultivated acres	**78.5**	**50.0**	**50.9**	**59.5**
Farmstead	2.6	2.1	1.8	2.2
Other improved land	—	0.3	[b]	0.1
Total improved	**81.1**	**52.4**	**52.7**	**61.8**
Rough pasture	0.8	0.7	2.2	1.2
Bush	2.0	1.8	7.8	3.9
Waste	1.0	0.7	0.6	0.8
Total unimproved	**3.8**	**3.2**	**10.6**	**5.9**
Total land	**84.9**	**55.6**	**63.3**	**67.7**
Estimated total arable land	83.6	53.6	61.7	66.0

[a] Includes rented land.

[b] Less than 0.05 acres.

All land on most of the farms was owned by the operator. Some owner-operators rented a few acres of land mainly for use as pasture. Only two farms were operated by tenants. Both of these farms were in the high income group. This accounts for most of the larger amount of rented land on high income farms (Table 3). Considering only the owner-operated farms, only five acres of improved land per farm were rented on high income farms. On this basis, medium income farms had the largest amount of rented land. This may indicate another attempt at overcoming the limitations imposed by the smaller acreage of cultivated land on these farms.

The average value per acre of improved land was slightly lower on farms with higher incomes. However, since the value per acre of land is so close

Table 3.—Average Acreage of Land Rented and Owned and Average Value of Land Owned, 65 Dairy Farms, Lower Fraser Valley, 1954

—	Operator's Labor Income			All farms
	High	Medium	Low	
	— acres per farm —			
Acreage rented:				
Improved	11.1	6.4	3.1	6.8
Unimproved	0.4	1.3	—	0.6
Acreage owned:				
Improved	70.0	46.0	49.6	55.0
Unimproved	3.4	1.9	10.6	5.3
	— dollars per acre —			
Value of land owned:				
Improved	298	304	311	304
Unimproved	105	138	79	91

to being the same for all income groups, differences in the investment in land (Table 1) are due almost entirely to the amount of improved land owned by the farmer.

Crop Yields.—Mixed grass hay and silage were selected to indicate differences in crop yields between the groups of farms. Other crops were grown on too few farms in some groups and on too small an acreage to provide a valid comparison of the yields on farms in different income groups.

As indicated in Table 4, the yields of mixed grass hay and grass silage were nearly the same on high and low income farms. However, the yields of these crops were somewhat lower on medium income farms.

The yields of grass hay and silage shown in Table 4 are based on the total acreages harvested, including that which was double-cropped. Thus, these yields are not necessarily the same as would be obtained if only one or the other of these crops was harvested from each acre of land.

Commercial Fertilizer and Lime.—Severe leaching of plant nutrients from the soil, caused by heavy winter rainfall, makes the use of fertilizer, necessary to maintain soil fertility and crop yields in the Fraser Valley. As a result, the cost of commercial fertilizers was one of the larger items of expenses on farms in this study.

The proportion of cultivated land on which commercial fertilizer was used and the kind and amount of fertilizer applied to different crops varied greatly between individual farms. However, about 70 per cent or more of the fertilizer was applied to hay and pasture which occupied more than 75 per cent of the cultivated acreage on farms in each income group. For these reasons, only the data for fertilizer applied to hay and pasture are used as a basis for appraising any differences between income groups in the use of commercial fertilizers (Table 5). The use of lime is considered also in the same manner.

The use of fertilizer is not considered separately for hay and pasture because the same kinds of fertilizer and rates of application are recommended

Table 4.—Average Yields per Acre of Mixed Grass Hay and Silage, 65 Dairy Farms, Lower Fraser Valley, 1954

—	Operator's Labor Income			All farms
	High	Medium	Low	
	— tons per acre —			
Mixed grass hay	2.3	1.9	2.4	2.2
Grass silage	6.3	5.5	6.7	6.2

for both hay and pasture. Furthermore, in most cases no distinction was made between hay and pasture in the information obtained on the use of fertilizer.

The data in Table V are averages of all the different kinds of commercial fertilizer applied to hay and pasture. The most common of these were 10-20-10 and superphosphate (0-10-0); other included mainly 6-30-15 and ammonium phosphate (16-20-0).

Fertilizers were applied to hay and pasture at nearly the same number of pounds per acre on high and medium income farms but at a somewhat lower rate on low income farms. The average percentages of available nitrogen, phosphorus and potash (NPK ratio) in these fertilizers were practically the same for each group of farms. Commercial fertilizers were applied to nearly two-thirds of the hay and pasture land on medium income farms as compared with slightly less than one-half of it on the high and low income farms. The average cost per ton of these fertilizers was somewhat higher for farms with lower incomes. Considering both the rate of application and the proportion of total acreage fertilized, it is apparent that the use of commercial fertilizers on hay and pasture was most intensive on medium income farms and least intensive on low income farms.

Table 5.—Average Use of Commercial Fertilizer and Lime on Hay and Pasture, 65 Dairy Farms, Lower Fraser Valley, 1954

——	Operator's Labor Income			All farms
	High	Medium	Low	
FERTILIZERS				
Pounds applied per acre	218	211	176	205
Per cent available nitrogen	6	7	7	6
" " " phosphorus	19	19	18	19
" " " potash	7	6	7	6
Per cent of total acres fertilized	46	63	46	51
Cost per ton (dollars)	70	74	79	73
LIME: [a]				
Pounds applied per acre	1,808	1,793	1,192	1,522
Per cent of total acres limed	17	14	33	21
Cost per ton (dollars)	5	5	5	5

[a] Also includes marl.

Lime was applied to only a small part of the hay and pasture land and at a lower rate than is generally recommended.

The extent to which fertilizers were used on other crops varied considerably. All of the land in potatoes and peas and two-thirds or more of the acreages in other cash crops but little more than one-third of the grain acreage received an application of some kind of commercial fertilizer.

Machinery and Equipment.—In general, dairy equipment consisted of a two-unit milking machine, milk cooler, water heater, feed cart, pails, strainers and any tools required for cleaning the equipment used in handling and storing milk. General equipment for soil tillage and crop production included a plow, either spike-tooth or chain harrows and often both, cultivator, disk, mower, side-delivery hay rake and often a dump rake, wagon or trailer, manure spreader and fertilizer spreader. All farms except one were equipped with a tractor. Either a car or a light truck, but usually only a car, was owned by the farmer and used partly on farm business.

In addition to this more or less standard set of machinery some farms in each income group were also equipped with some of the following: land roller or packer, seed drill, hay loader, sillage cutter, and sprinkler irrigation equipment. Machinery on only a few farms included a forage harvester, a hay baler, a bale conveyor, or a combine.

Table 6.—Average Annual Cost of Equipment, 65 Dairy Farms, Lower Fraser Valley, 1954

—	Operator's Labor Income			All farms
	High	Medium	Low	
	— dollars per farm —			
Operating costs:				
Power equipment	617	560	537	571
Gas and oil for other motors	15	2	6	8
Repairs to general equipment	145	70	97	103
Depreciation:				
Power equipment	430	337	407	391
General equipment	338	246	331	304
Interest on investment	336	259	322	305
Total annual cost	**1,881**	**1,474**	**1,700**	**1,682**

The value of equipment per farm in the high, medium and low income groups was $6,717, $5,171 and $6,447, respectively. The amount and kind of equipment were largely responsible for the difference in these values. Other factors which presumably contributed to the value of individual items of equipment, and therefore accounted for some of the difference in total value of equipment, are size, condition and age.

The annual costs associated with equipment are summarized in Table 6. Operating costs for power equipment include fuel, oil, grease and repairs for tractors and the farm share of the cost of gas, oil, grease, repairs, license and insurance for cars and trucks. In addition, there was a small amount of gas and oil for motors on forage harvesters, hay balers and combines and the cost of repairs to all equipment other than power equipment. Depreciation of all equipment during the year was a major cost, equalling the total operating costs on high and medium income farms and exceeding it on low income farms. Interest on the investment in equipment was charged at the rate of five per cent.

The total annual cost of equipment was considerably larger on both high and low income farms than on medium income farms. However, the annual equipment cost per acre of land under cultivation amounted to $24, $29 and $33 on high, medium and low income farms, respectively. When considered on this basis, lower equipment costs appear to be rather definitely associated with a higher return to the operator's labor.

THE FARM IMPROVEMENT LOANS ACT, 1945-55

Baldur H. Kristjanson[1]

Short and intermediate-term loans to farmers have been made under the Farm Improvement Loans Act for a little over a decade. Since this legislation constitutes one of the major innovations in Canadian agricultural policy in the postwar period, it seems appropriate to review the lending operations carried out under the provisions of the Act. Reference will be made also to changes in this legislation in 1956.[2]

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[1] The writer gratefully acknowledges the assistance received from Mr. D. M. McRae, national supervisor of the program. Mr. McRae supplied the data on which this article is based and reviewed the manuscript.

[2] The aims and provisions of the Act have been outlined in *Financing Farm Improvements, Economic Annalist,* August, 1950. Further details may be obtained by writing to the Supervisor, Farm Improvement Loans Division, Department of Finance, Ottawa.

Table 1.—Loans Made Under the Farm Improvement Loans Act, All Purposes, 1945-55

Year	Number of loans made	Amount loaned	Average size of loan
	— number —	— dollars —	
1945[a]	4,311	3,381,742	784
1946	13,030	9,880,566	758
1947	22,046	18,160,821	824
1948	30,431	29,331,131	964
1949	44,775	45,879,080	1,025
1950	58,969	63,421,363	1,076
1951	75,063	85,326,227	1,137
1952	83,315	98,259,152	1,179
1953	83,962	97,892,760	1,166
1954	58,572	62,073,806	1,060
1955	60,755	69,105,520	1,137
Total	**535,229**	**582,712,168**	**1,089**

[a] Ten months only.

Extent of lending operations.—A total of 535,229 loans in the amount of $583 million had been made by the end of 1955 (Table 1). The annual rate of lending increased from a little over $3 million in 1945 to a peak of $98 million in 1952. There was a consistent upward trend during this period. By 1954 this trend had been reversed and the total amount loaned was below that for 1950. Lending increased again in 1955 by about $7 million.

The 1952 peak in lending activity coincided with the highest average size—$1,179—for individual loans. Since 1949, the average loan has always exceeded $1,000.

Provincial distribution.—During the 1945-55 period, Saskatchewan received almost one-third of all loans made under the Act, (Table 2). Alberta was a close second with 28 per cent and the Prairie Provinces combined accounted for 72 per cent of the total amount loaned.

The average size of loans was fairly similar throughout Canada. On the average, however, they were lower in Nova Scotia and higher in Newfoundland than in other provinces.

The large volume of loans made in the Prairie Provinces may be explained by: (1) the rapid mechanization of agriculture in this area, already underway before World War II, and (2) the nature of the risks involved in making loans to farmers on Prairie farms. There was, in effect, a capital vacuum in the region in 1945.

Table 2.—Total Loans and Average Size of Loans Made under the Farm Improvement Loans Act by Provinces, 1945-55

Province	Amount	Per cent	Number of loans	Average size of loan
	— thousand dollars —			— dollars —
Saskatchewan	188,097	32	165,465	1,136
Alberta	162,607	28	151,399	1,074
Ontario	81,727	14	75,260	1,085
Manitoba	70,978	12	68,053	1,042
Quebec	45,615	8	40,869	1,116
British Columbia	16,329	3	15,694	1,040
Prince Edward Island	7,306	1	8,069	910
New Brunswick	4,926	1	4,677	1,053
Nova Scotia	4,888	1	5,545	881
Newfoundland	240	[a]	198	1,212
Total	**582,713**	**100**	**535,229**	**1,088**

[a] Less than 0.5 per cent.

Table 3.—Loans Made Under the Farm Improvement Loans Act, Classified by Purposes of Loans, 1945-55

Purpose	Amount	Per cent
	— thousand dollars —	
Implements	519,472	89
Buildings	32,508	6
Livestock	18,961	3
Development	9,203	2
Electric systems	2,066	[a]
Fencing and drainage	502	[a]
Total	**582,712**	**100**

[a]Less than 0.5 per cent.

Farmers know what they needed in terms of farm equipment but regular credit sources were not in a position to meet their needs. By the simple technique of giving a limited guarantee to banks willing to make loans to farmers, this legislation effected a financing revolution in the Prairies.

The question also arises as to the effectiveness of this legislation in other areas of Canada. Borrowings, under the Act, increased in Ontario and Quebec in 1955. Ontario's share was 4.5 per cent higher in 1955 than the average for the 1945-55 period and Quebec's share 6.5 per cent higher. This seems to indicate a trend toward a broader participation in the program as well as an increased mechanization outside the Prairie grain-land areas.

Loans classified by purposes.—There has been a strong emphasis on borrowing for the purchase of farm implements; these loans accounted for 89 per cent of all lending under the Act during the 1945-55 period (Table 3).

The construction, repair and alteration of farm buildings ranked second, with six per cent of the value of all loans made. In 1955, Ontario led all provinces for this type of loan. Alberta and Saskatchewan stood second and third respectively.

Livestock loans represented about three per cent of the total for the period considered. In 1955, Alberta recorded more loans for this purpose than any other province. Ontario ranked second.

Development loans, more than one-half being made for clearing and breaking new land, accounted for about two per cent of the total.

Loans for the purchase of agricultural implements.—Trucks, tractors, combines and hay balers have been the major items purchased. In 1955, tractors alone

Table 4.—Loans Made Under the Farm Improvement Loans Act for the Purchase of Agricultural Implements, 1946-55

Year	Number of loans made	Amount loaned	Average size of loan
		— dollars —	
1946	9,586	7,488,347	781
1947	17,779	15,211,232	856
1948	26,711	26,759,107	1,002
1949	39,197	41,717,919	1,064
1950	52,733	58,391,636	1,107
1951	67,604	78,302,385	1,158
1952	75,347	90,818,129	1,205
1953	73,934	88,057,198	1,191
1954	48,898	52,069,707	1,065
1955	50,857	58,371,705	1,148

Table 5.—Loans Made under the Farm Improvement Loans Act for the Construction and Repair of Farm Buildings, 1946-55

Year	Number of loans made	Amount loaned	Average size of loan
		— dollars —	
1946	1,606	1,573,874	980
1947	1,718	1,780,399	1,036
1948	1,347	1,350,981	1,003
1949	2,024	2,168,384	1,071
1950	2,128	2,402,309	1,129
1951	2,814	3,378,565	1,201
1952	2,923	3,474,114	1,189
1953	3,876	5,057,563	1,305
1954	4,239	5,661,520	1,336
1955	3,578	4,886,207	1,366

accounted for nearly one-half of all loans made for the purchase of farm implements. Combines were next in importance.

The highest level of borrowing for farm implements was reached in 1952 when $91 million were borrowed (Table 4). By 1954 this had fallen to $52 million. In 1955, borrowing increased again both in terms of total loans and average size of loan.

Farm buildings.—The upward trend in borrowings for farm buildings continued through 1954 when it reached $5,661,520 (Table 5). Volume of borrowing was somewhat lower in 1955 but the average size of loan reached its highest point, $1,366.

Loans, in this group, have been made for the construction of new buildings and repairing or altering existing buildings. Loans are made up to 90 per cent of the estimated cost of the project.

Livestock loans.—The trend in borrowing for the purchase of livestock has been consistently upward with the exception of 1954. The largest volume of borrowing occurred in 1955, amounting to $3,575,023 (Table 6). These loans are made primarily for foundation or breeding stock and are made for 75 per cent or less of the purchase price. In 1955, Alberta farmers, with a little over 25 per cent of all the livestock loan volume, led all other provinces. Ontario followed with 20 per cent.

Farm electric systems and agricultural equipment.—One of the less spectacular aspects of this loan program has been the provision of loans for electrification and the purchase of farm equipment. Nevertheless, this type of lending is an indication of the broad scope of the program.

Table 6.—Loans Made under the Farm Improvement Loans Act for the Purchase of Livestock, 1946-55

Year	Number of loans made	Amount loaned	Average size of loan
		— dollars —	
1946	663	382,958	578
1947	759	435,875	574
1948	764	517,740	678
1949	1,111	804,515	724
1950	1,805	1,483,474	822
1951	2,918	2,741,291	939
1952	3,175	2,899,824	913
1953	3,694	3,053,914	827
1954	3,658	2,875,926	786
1955	4,443	3,575,023	805

Table 7.—Loans made under the Farm Improvement Loans Act for the Purchase of Agricultural Equipment or Farm Electric Systems, 1946-55

Year	Number of loans made	Amount loaned	Average size of loan
		— dollars —	
1946	93	45,518	489
1947	139	69,105	497
1948	220	113,875	518
1949	362	186,038	514
1950	422	195,669	464
1951	406	167,669	413
1952	359	154,459	430
1953	456	347,666	762
1954	387	286,343	740
1955	433	460,184	1,063

Table 7 shows the amounts loaned and the average size of these loans for the 1945-55 period. There was a substantial increase in average size of loan between 1954 and 1955.

New land development.—More than one-half million acres of land have been cleared and/or broken since 1945 under the provisions of the Act (Table 8). In 1949 the largest acreage was thus improved.

The Prairie Provinces have obtained most of the loans made for clearing and breaking new land. Alberta, of these three provinces, has shown the greatest activity in this regard. In 1955, for example, Alberta farmers applied these loans to 14,014 acres out of a total of 22,502 acres.

Table 8.—Loans for Clearing and Breaking New Land under the Farm Improvement Loans Act 1945-55[a]

Year	Number of loans made	Amount loaned	Acreage	Loans per acre
		— dollars —	— acres —	— dollars —
1945-46[b]	1,106	387,806	55,167	7.03
1947	1,356	522,344	68,693	7.60
1948	1,203	492,686	59,954	8.22
1949	1,694	733,851	83,088	8.83
1950	1,505	696,494	69,888	9.97
1951	900	424,397	36,851	11.52
1952	987	495,467	45,138	10.98
1953	1,294	694,316	58,920	11.78
1954	741	390,932	32,207	12.14
1955	513	286,100	22,502	12.71
Total	**11,299**	**5,124,393**	**532,408**	**9.62**

[a] Source, F.I.L.A. Annual Report, 1955.

[b] Ten months of 1945 and full year of 1916.

Changes in loan limits.—The Farm Improvement Loans Act came into force on March 1, 1945. The maximum amount which any farmer could borrow was $3,000; the interest rate was five per cent simple interest; the repayment period was up to ten years depending on the size and purpose of the loan with the exception of farm implement loans which had to be repaid within three years.

The interest rate and repayment period have remained unchanged. The loan limit however has been increased on two occasions. During 1953 the limit was raised to $4,000 and in 1956 it was increased further to $5,000.

The Act has been extended to March 31, 1959.

RECENT DEVELOPMENTS AFFECTING LIVESTOCK PRODUCTION IN THE AMERICAS[1]

Recognizing that the livestock industry is important to all of its member countries in North, Central and South America and in the Caribbean area, the Food and Agriculture Organization of the United Nations organized a series of three meetings held in Turrialba, Bauru and Buenos Aires in 1950, 1952 and 1955, respectively, to consider problems of livestock production in the Americas, and provided to the members of delegations from participating countries opportunities:

(1) to exchange information on their problems and on the steps being taken to deal with them through research, extension, training of technical workers, and other means;

(2) to see the production methods, types of livestock, grasslands, and agricultural institutions in three countries, namely, Argentina, Costa Rica and Brazil each with its own characteristic conditions and problems;

(3) to establish personal contacts with workers in their own and closely related fields in other countries, thus facilitating the flow of information between countries; and

(4) to improve their work in their own countries by applying information obtained from workers in other countries and as a result of the stimulus emanating from the exchange of ideas with their fellow scientists.

The participants in these meetings, recognizing the value of the inter-country consultations provided for therein, considered that some more formal arrangement should be made to ensure continued contacts between countries, particularly during the intervals between meetings. They, therefore, recommended at the Buenos Aires meeting that the Director-General of FAO should establish an inter-governmental working party to provide for this continuing consultation on livestock problems in the Americas. Action to implement this recommendation has been initiated.

Thus, the three meetings have provided an opportunity for the gradual sorting out of a relatively few subjects upon which definite steps may be taken to develop inter-country co-operation, and the work initiated at the meetings will enter a new phase. In the work thus far the emphasis has been on the exchange of information. In the phase which is now beginning through the establishment of a working party and consideration of the establishment of sub-groups, the emphasis will be much more on the development of inter-country co-operation in limited fields, although the opportunities for exchange of information in these and other fields is expected to continue in the series of meetings, the fourth of which has been recommended to be held in Jamaica in 1958. This development paper may, therefore, be regarded as a bridge between the two phases of activity, providing an end-point for the first phase, and a point of departure for the second phase which took definite form as a result of the discussions in the Buenos Aires meeting.

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[1] This is a publication issued by the FAO and designed to make available to member countries of the Food and Agriculture Organization of the United Nations information that should be useful to them in planning and implementing agricultural improvement programs. This Agricultural Development Paper (No. 55, issued in 1956) is based on material presented to the Third FAO Meeting on Livestock Production in the Americas by delegations from 18 countries (Argentina, Bolivia, Brazil, Canada, Chile, Costa Rica, Dominican Republic, Ecuador, France, Guatemala, the Netherlands, Panama, Paraguay, Peru, United Kingdom, Uruguay, the United States of America and Venezuela), and by staff members of the Agriculture Division of FAO and the Inter-American Institute of Agriculture Sciences (IAIAS). The scope of the report is indicated in the chapter headings: Improving Livestock Through Breeding; Improving Livestock Production Through Improved Nutrition and Management; Improving Livestock Production Through Better Disease and Parasite Control; Status of the Poultry Industry and Possible Programs for Improvement; Interpretation and Evaluation of the Results of Animal Husbandry and Veterinary Experiments; National Services to the Livestock Industry and Proposals to Facilitate Co-operation Among the Countries. This publication may be obtained in Canada from the Ryerson Press, Toronto, and Periodica Inc., Montreal.

ATTITUDES OF SOME RURAL LEADERS IN SIMCOE COUNTY, ONTARIO

HELEN C. ABELL

In October 1956, 33 of the people who attended the Simcoe County Community Life Conference answered a questionnaire dealing with their own attitudes to leadership and the chief problems and satisfactions they had experienced as leaders in their organizations.

These people were: (1) mostly residents of farms (22 lived on a farm, eight in a village and three in a city); (2) middle aged (five were under 40 years of age, eight were in their forties; 12 in their fifties and six were sixty years of age or older) and; (3) about equally divided between sexes (13 were men, 20 were women).

Experience.—They had been members of organized groups for many years. Each one of them belonged to from one to 12 different organizations; the average number for the whole group was four organizations per respondent. They were from a wide number and variety of organizations, over 50 different ones being listed. These organizations may be classified into nine different types; agricultural, religious, civic, co-operative, professional, fraternal sports, social welfare and health, and others. These leaders have a long and varied experience. During the past ten years nearly all have held an average of four to five offices in various organizations.[1] They have experienced shared or interactional leadership in that they have served both as leaders and general members in the organized groups to which they belong.

Attitudes Toward Leadership.—Most of the respondents seem to hold attitudes which are conducive to the development and encouragement of shared leadership in their communities. These attitudes are illustrated by their reactions to a series of six statements concerning attitudes to leadership. These statements and the number of persons agreeing, in doubt or disagreeing with them, are presented in Table 1.

About the same proportion of men and women agreed with each statement with the exception of the second one. All women agreed but four men disagreed with this statement, which reads "Sometimes the leader does not know better than the members what goals the group or organization should achieve".

Satisfactions and Dissatisfactions as Leaders:—The respondents were asked, "If you have ever held office in any organization, would you list the three chief satisfactions derived from this experience and also the three chief problems or dissatisfactions".

Satisfactions.—These were of five general types: [2]

(1) **Self-development.**—This was expressed by such phrases as "meeting other people who have different points of view", "outside interest", "gave me more confidence", "education gained by keeping up on topics

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[1] At the time of answering the questionnaire 25 persons held an elected or appointed office in from one to six organizations (an average of approximately three offices were held). Within the past ten years 26 of them had held from one to six offices (an average of two per person) which they no longer held at the time they filled the questionnaire.

[2] Six of the 33 respondents did not express any satisfactions and five mentioned only one type, 22 listed two or more different types of satisfaction (13 gave two types, eight gave three types and one respondent listed four different types of satisfaction).

of the day", "increased ability to regiment my thinking and express my thoughts", "I have grown spiritually", "got new idea", "personal development and education", "satisfaction of becoming better at a job by added experience", "learning to be able to get up and speak in public" (Mentioned by 16 respondents).

(2) **Increased understanding and appreciation of other people.**—This was expressed by such phrases as: "meeting others", "social life", "wonderful to work as groups", "meeting the public", "working with others", "fellowship". (Mentioned by 14 respondents).

(3) **Fulfilling ideals.**—The most frequently mentioned ideal was that of helping or serving other persons in the community (mentioned by nine persons). Other ideals which had been achieved were expressed by phrases such as: "my organization work has all been co-operative and I believe in the co-operative way of life", "seeing that democracy will work if given a chance", "I believe strongly in women's administration and believe I am supporting it in this office". (Mentioned by 13 people).

Table 1.—Reactions to Six Statements Concerning the Acceptance of Shared Democratic Leadership in Organizations

Statement	Respondents' Reactions			
	Agreed	In Doubt	Disagreed	Total
	— number of respondents —			
1. An effective committee is one whose members are always free to challenge the leader	31	2	0	33
2. Sometimes the leader does not know better than the members what goals the group or organization should achieve	27	2	4	33
3. People learn to be dependent, but they also desire freedom from direction by others	26	5	2	33
4. A leader should not hold on to his power even though he thinks he is wise and just	24	1	8	33
5. Members of a group always have final authority on how and what it thinks and does	24	5	4	33
6. A leader is not a special kind of person but every person is a special kind of leader	19	2	12	33

Note: The number of persons agreeing to all six of these statements was eight; five statements were agreed to by eight persons; four were agreed to by 13 persons; three were agreed to by three persons; two were agreed to by one person. No one agreed with less than two statements.

(4) **Increased knowledge, interest in and support of organization.**—This was expressed by such phrases as: "added interest in the organization", "encouraging other people to become leaders and bringing people out as members who otherwise never would have joined", "satisfaction in having had a hand in building a stronger organization", "learned to appreciate the work of past officers". (Mentioned by 10 persons).

(5) **Tangible achievements.**—This type of satisfaction was specified as: "satisfatcion of having learned better methods of farming", "the building of a new church, Community centre and township office", "have accomplished some worthwhile projects". (Mentioned by six persons).

Dissatisfactions.—These were of five general types:

(1) **Members' lack of support of the organization.**—One recurrent theme was the reluctance of members to share leadership responsibilities. This was expressed in such ways as "too much left to the few willing workers", "lack of leaders or convenors", "not enough members will take leadership", "members will not take any responsibility". Lack of support was also expressed as, "poor attendance", "late for meetings", "used as a night out", "lack of interest", "those members who don't care and discourage others", "seeing a deficit in the accounts receivable at the Co-op Feed Mill". (Mentioned by 17 respondents).

(2) **Enlisting new members for existing organization.**—This was expressed in terms such as: "farmers not backing the Federation of Agriculture", "there is not enough community life". (Mentioned by five respondents).

(3) **Lack of time for all necessary activities.**—Mentioned in phrases such as: "lack of time for all my interests", "neglecting my family and farm", "working too long hours, no time to come to meetings". (Mentioned by five respondents).

(4) **Handling discussions during meetings of the organization.**—Stated in phrases such as: "inability to get members to express their opinions during the meeting", "doing arguing outside of the meeting", "problem of muzzling the person who wants to talk all the time and dominate all the thinking". (Mentioned by four respondents).

(5) **Feelings of personal or group inadequacy.**—These feelings were expressed in phrases such as: "job too big for the people involved", "not learning of urgent needs of fellow members until almost too late for results", "program getting stale". (Mentioned by three people).

Satisfactions Outweigh Dissatisfactions.—There is little doubt that leadership brings both satisfactions and dissatisfactions. For the 33 persons who supplied the information reviewed in this article satisfactions were more numerous and meaningful than dissatisfactions.

CROPPING AND FEEDING PRACTICES IN DEUX-MONTAGNES AND ARGENTEUIL COUNTIES, QUEBEC

L. R. FORTIER

Deux-Montagnes and Argenteuil, two counties located in the Montreal Milkshed Area, were selected by the Economics Division in 1953 for a study of cropping and feeding practices. Fifty-nine records were obtained from farms, in these two counties, with purebred or grade Holstein herds.

CROPPING PRACTICES

Land Use.—The 59 farms ranged from 85 to 350 arpents in size and averaged 164 arpents per farm. For purposes of analysis these farms were sorted into four groups: 18 farms without silage, 30 with corn silage, five with grass silage and six with corn and grass or mixed silage. The total acreage and the acreage in crops averaged 234 and 115 arpents, respectively, on the grass silage farms, and 226 and 149 arpents, respectively, on the mixed silage farms. Acreages were much smaller for the other two groups of farms; those without silage had 139 total arpents and 84 crop arpents, on the average, and those with corn silage 154 and 84, respectively.

On the average, corn silage and mixed silage farms had 34 arpents in pasture, farms without silage had 38 arpents and grass silage farms 48 arpents. Table 1 summarizes the distribution of land to various uses. Long term non-tillable pastures are unimproved but short term ladino and long term tillable pastures have been improved. The ladino pastures are used for three grazing seasons after seeding and the long term tillable pastures for ten or more grazing seasons. Rotation pastures are the third-year hay crop which is used as pasture instead of being cut for hay.

Cropping Systems.—The five and six-year crop rotations were the predominant types of rotation. The five-year rotation was followed on 29 farms and a six-year rotation on 21 farms. The remaining nine farms had longer or shorter rotations.

The five-year rotation included one year of corn silage and small grains, one year of small grains, with two years of hay and one year of pasture on 12 farms, or with three years of hay and no pasture on seven farms; the rotation included two years of small grains, two of hay and one of pasture on seven farms. The six-year rotation included two years of small grains, two years of hay, and two years of pasture on 12 farms; on the remaining nine farms with a six-year rotation, the combination of crops varied from one farm to another. Small grains were mostly oats, some barley seeded alone or in mixture with oats, and a few acres of buckwheat.

Table 1.—Land Use, 59 Farms, Deux-Montagnes and Argenteuil Counties, Quebec, 1953

——	Farms without silage	Farms with corn silage	Farms with grass silage	Farms with mixed silage	All farms
Number of farms	18	30	5	6	59
			– per cent –		
Area in crops	60·4	55·1	49·4	65·8	57·3
Area in pasture	27·0	22·2	20·6	15·3	22·3
Short term ladino	—	—	—	0·8	0·1
Crop rotation	14·3	10·7	5·5	7·9	10·6
Long term tillable	9·9	9·8	15·1	6·6	10·1
Long term non-tillable	2·8	1·7	—	—	1·5
Woods pastured	0·8	11·2	16·2	8·8	8·8
Woods not pastured	7·4	8·6	12·1	4·8	8·2
Waste land, yards, etc	4·4	2·9	1·7	5·3	3·4
Total land area	**100·0**	**100·0**	**100·0**	**100·0**	**100·0**

On farms without silage 43 per cent of the crop acreage was in small grains, a larger proportion than for the other three groups of farms (Table 2). The area in grasses and legumes amounted to 73 per cent of the total crop acreage on grass silage farms, 59 per cent on mixed silage farms and 55 per cent on corn silage farms and those without silage. None of the farms was organized mainly for the production of grasses and forage.

Fertilization Practices.—Commercial fertilizers or manure were applied to the corn and grain crops. Twenty-seven of the 59 farms reported the use of commercial fertilizers. Very few farms reported the use of lime on crops or on pasture.

Fifteen of the 59 farms reporting grain applied commercial fertilizers and manure, five applied commercial fertilizers alone, 26 applied manure alone, and 13 farms applied no fertilizer of any kind. The land on which commercial fertilizers, usually 2-12-10, were applied represented 22 per cent of the total in small grains. Applications ranged from 100 to 400 pounds and averaged 239 pounds per arpent. Farm manure was applied to 36 per cent of the total land in small grains and averaged ten tons per arpent. Very little lime was used on small grains.

Twelve of the 35 farms reporting corn silage applied both commercial fertilizers and manure. The remaining 23 farms applied manure only. The area on which commercial fertilizers (2-12-10) were applied represented 27 per cent of the total area in corn. Applications ranged from 100 to 800 pounds and averaged 342 pounds per arpent. Farm manure was applied to 91 per cent of the land used for corn. The amount applied ranged from 5 to 20 tons and averaged 13 tons per arpent. Very little commercial fertilizers or manure were applied to the hay crop and to pasture in the crop rotation. Seventeen per cent of the area in long term tillable pasture received an application of manure at the rate of ten tons per arpent.

Seeding Practices.—The seeding mixture included timothy, red clover and alsike, on 11 farms. Alfalfa was added to this mixture on 23 farms. The composition of the seeding mixtures varied on the remaining farms. Rates of seeding ranged from nine to 22 pounds and averaged 14 pounds per arpent.

Table 2.—Percentage Distribution of Crop Area, 59 Farms, Deux-Montagnes and Argenteuil Countries, Quebec, 1953

—	Farms without silage	Farms with corn silage	Farms with grass silage	Farms with mixed silage	All farms
Number of farms	18	30	5	6	59
			- per cent -		
GRAIN					
Mixed grain	11·7	7·7	—	0·9	6·8
Oats	29·5	24·2	27·1	21·5	25·5
Other grain	1·4	1·2	—	7·7	2·2
Grain for hay and silage	—	0·2	—	1·6	0·3
	42·6	33·3	27·1	31·7	34·8
ROW CROP					
Corn silage	—	8·5	—	2·8	4·4
Fodder corn	—	0·5	—	—	0·2
Roots	0·2	—	—	—	0·1
	0·2	9·0	—	2·8	4·7
GRASSES AND LEGUMES					
Hay	55·4	55·5	45·2	53·5	54·2
Grass silage	—	—	27·7	5·9	3·8
	55·4	55·5	72·9	59·4	58·0
Fruits and vegetables	1·8	2·2	—	6·1	2·5
Total crops	**100·0**	**100·0**	**100·0**	**100·0**	**100·0**

The seed used for small grain was home-grown on 43 farms and certified seed on nine farms. Six farms used both home-grown and certified seed; only one farm used western grain.

Hay Harvesting Period.—Haying operations started at the end of June on 39 per cent of the farms and from July 1 to July 5 on 47 per cent of the farms. Hay is in early bloom during this period. Only 14 per cent of the farms started haying operations on or after July 6.

Table 3.—Average Crop Yields per Arpent, 59 Farms, Deux-Montagnes and Argenteuil Counties, Quebec, 1953

——	Farms without silage	Farms with corn silage	Farms with grass silage	Farms with mixed silage	All farms
Number of farms	18	30	5	6	59
Mixed grain —bushels	21·8	26·3	—	60·0	24·9
Oats —bushels	25·5	32·6	22·4	22·6	27·9
Corn silage —tons	—	8·5	—	6·6	8·3
Grass silage —tons	—	—	2·5	4·5	3·0
Other silage —tons	—	—	—	4·9	4·9
Hay —tons	1·2	1·1	1·5	1·2	1·2

Crop Yields.—Oats yields averaged 28 bushels and ranged from 12 to 60 bushels per arpent (Table 3). Yields of mixed grain averaged 25 bushels and ranged from 13 to 60 bushels per arpent.

Corn silage yields averaged 8·3 tons and ranged from 3·0 to 17·0 tons per arpent. Grass silage and hay yields were low. Grass silage averaged only 3·0 tons and ranged from 2·0 to 6·3 tons per arpent. Hay averaged only 1·2 tons and ranged from 0·5 to 2·9 tons per arpent. The average yields obtained in 1953 were above normal for the area for small grains and normal for hay. During the eight-year period from 1944 to 1952 oats yields averaged 22 bushels per arpent and hay yields 1·2 tons per arpent.

The yields of various crops were arbitrarily computed in terms of Total Digestible Nutrients. Table 4 presents a summary of the percentage distribution of TDN provided by various types of crops on the four different types of farms.

The average output of TDN was calculated for each group of farms in order to measure the effect of various crop combinations on the total TDN output per farm. The farms with corn silage had the highest output—1,000 pounds of TDN per arpent. The mixed silage farms had 923 pounds of TDN per arpent. The farms with grass silage had 852 pounds and the farms without silage 831 pounds. On farms with grass silage, 85 per cent of the TDN was from roughage compared with 67 per cent on farms without silage and 76 per cent on farms with mixed silage.

Table 4.—Percentage Distribution of Average Production of Total Digestible Nutrients, 59 Farms, Deux-Montagnes and Argenteuil Counties, Quebec, 1953

——	Farms without silage	Farms with corn silage	Farms with grass silage	Farms with mixed silage	All farms
Number of farms	18	30	5	6	59
			- per cent -		
Grain	32	26	15	24	26
Silage	—	22	25	19	17
Hay	67	51	60	57	57
Other crops	1	1	—	—	—
Total	**100**	**100**	**100**	**100**	**100**

Table 5.—Percentage of Total TDN Fed to Dairy Cows During the Summer from Pasture and Supplementary Feed, 53 Farms, Deux-Montagnes and Argenteuil Counties, Quebec, 1953

—	TDN			
	Farms without silage	Farms with corn silage	Farms with grass or mixed silage	All farms
Number of farms	18	26	9	53
	– per cent –			
Purchased concentrates	10	9	10	10
Home-grown grain	6	5	3	5
Total concentrates	16	14	13	15
Hay	1	1	0·5	1
Grass silage	—	—	0·5	—
Other feed	—	—	—	—
Pasture	83	84	86	84
Total	**100**	**100**	**100**	**100**

FEEDING PRACTICES

Fifty-three farms selling fluid milk to Montreal dairies supplied information on feeding practices. Cow numbers averaged 17 per farm for the 18 farms without silage, 14 for the 26 silage farms and 26 for the nine farms with grass or mixed silage. Milk production averaged 8,536 pounds per cow per year on farms without silage, 9,004 pounds on corn silage farms and 8,735 pounds on grass or mixed silage farms. Sixty-two per cent of the milk was produced during the winter, from November to the end of May.

Requirements for the production of milk in the summer and the maintenance of the dairy cows were calculated in terms of TDN. Table 5 shows that percentage of the TDN required in the summer which was supplied by pasture

Table 6.—Pounds of TDN Fed per 100 Pounds of Milk During the Summer, 53 Farms, Deux-Montagnes and Argenteuil Counties, Quebec, 1953

—	TDN			
	Farms without silage	Farms with corn silage	Farms with grass or mixed silage	All farms
Number of farms	18	26	9	53
	– pounds –			
Purchased concentrates	7	7	7	7
Home-grown grain	5	4	2	4
Total concentrates	12	11	9	11
Hay	1	1	0·5	1
Grass silage	—	—	0·5	—
Other feed	—	1	—	—
Pasture	60	63	63	62
Total	**73**	**76**	**73**	**74**

Table 7.—Percentage of Total TDN Fed to Dairy Cows During the Winter from Purchased and Home-Grown Grain, 53 Farms, Deux-Montagnes and Argenteuil Counties, Quebec, 1953

—	TDN			
	Farms without silage	Farms with corn silage	Farms with grass or mixed silage	All farms
Number of farms	18	26	9	53
	– per cent –			
Purchased concentrates	29	19	26	24
Home-grown grain	17	16	12	15
Total concentrates	46	35	38	39
Hay	54	43	41	46
Corn silage	—	22	4	11
Grass silage	—	—	16	4
Other silage	—	—	1	—
Total	**100**	**100**	**100**	**100**

and supplementary feed. Concentrates (home-grown grain and purchased feeds), the only supplementary feeds, made up from 13 to 16 per cent of the TDN fed.

The quantity of TDN fed per 100 pounds of milk ranged from 73 to 76 pounds and pasture accounted for as much as from 60 to 63 pounds of the total amounts (Table 6). During the summer concentrates were fed at the rate of one pound per six pounds of milk, on farms without silage and on farms with corn silage, and at the rate of one pound to seven pounds of milk on farms with grass and mixed silage.

Winter feeding practices are summarized in Table 7. Roughage made up a larger proportion of the TDN on farms with silage than on other farms, representing 65 per cent of the total TDN on corn silage farms, 61 per cent on

Table 8.—Pounds of TDN Fed per 100 Pounds of Milk During the Winter, 53 Farms, Deux-Montagnes and Argenteuil Counties, Quebec, 1953

—	TDN			
	Farms without silage	Farms with corn silage	Farms with grass or mixed silage	All farms
Number of farms	18	26	9	53
	– pounds –			
Purchased concentrates	22	18	22	20
Home-grown grain	13	15	10	13
Total concentrates	35	33	32	33
Hay	41	41	34	39
Corn silage	—	20	3	9
Grass silage	—	—	13	3
Other silage	—	—	1	1
Total	**76**	**94**	**83**	**85**

grass and mixed silage farms and 54 per cent on farms without silage. Concentrates made up from 35 to 46 per cent of the total TDN fed. Hay was supplemented by high protein feed, on farms without silage. The TDN from purchased concentrates amounted to 53 per cent of the total TDN from concentrates on corn silage farms, 64 per cent on farms without silage and 68 per cent on grass and mixed silage farms. None of the three groups of farms produced enough grain on the farm to meet requirements for milk production.

The TDN per 100 pounds of milk during the winter ranged from 76 pounds on farms without silage to 94 pounds on corn silage farms (Table 8). The rate of concentrates feeding during the winter, for each group of farms, was one pound of concentrates for every two pounds of milk.

Table 9.—Amount of Feed Fed per Cow per Year, Exclusive of Pasture, Milk Production per Cow and Rate of Concentrates Feeding, 53 Farms, Deux-Montagnes and Argenteuil Counties, Quebec, 1953

—	Farms without silage	Farms with corn silage	Farms with grass or mixed silage
Number of farms	18	26	9
		- pounds -	
Purchased concentrates	1,995	1,603	2,148
Home-grown grain	1,207	1,614	943
Total concentrates	3,202	3,217	3,091
		- tons -	
Hay	2·7	2·8	2.4
Silage	—	3·7	3.0
		- pounds -	
Milk production per cow	8,536	9,004	8,735
Pounds of concentrates per hundredweight of milk	3·8	3·6	3.5

The amounts of feed fed per cow during the year, exclusive of pasture, are described in Table 9. The total amount of concentrates fed per cow was the same for the three groups of farms. Grasses and legumes averaged 2.7 tons per cow per year on farms without silage, 5·4 tons on farms with grass and mixed silage and 6·5 tons on farms with corn silage; average milk production per cow was slightly higher on these farms than on those without silage and those with grass or mixed silage.

THE ECONOMIC ANNALIST

A BIMONTHLY REVIEW OF AGRICULTURAL BUSINESS

MARKETING SERVICE, ECONOMICS DIVISION

J. F. BOOTH, Chief

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ANNUAL AND MONTHLY INDEX NUMBERS

Wholesale Prices, Farm Prices and Living Cost Indexes

Year and Month	General Wholesale Price	Wholesale Prices of Canadian Farm Products[a]			Farm Prices of Agricultural Products[b]	Prices of Commodities and Services used by Farmers		Consumer Price		Industrial Production
		Total[b]	Field[b]	Animal		Composite[c]	Equipment and Materials[d]	Total	Food	
		1935–39=100						1949=100		1935–39=100
1913	83·4	....	....	....	....	....	85·4	49·2	44·4	....
1914	85·4	....	....	....	....	85·3	90·2	49·6	46·0	....
1915	91·8	....	....	....	....	91·6	96·9	50·3	46·8	....
1916	109·8	....	....	....	....	100·5	101·7	54·2	51·8	....
1917	148·9	....	....	....	....	140·5	140·7	63·7	66·9	....
1918	166·0	....	....	....	....	160·2	164·1	72·0	76·9	....
1919	174·7	....	....	....	....	167·9	169·1	78·8	82·2	....
1920	203·2	....	....	....	....	186·5	190·1	90·5	94·4	....
1921	143·4	....	....	....	....	152·5	147·4	80·9	72·5	....
1922	126·8	....	....	....	....	134·1	124·6	74·9	61·5	....
1923	127·7	....	....	....	....	130·6	118·3	75·2	61·9	....
1924	129·5	....	....	....	....	131·9	122·3	74·0	60·7	....
1925	133·8	....	....	....	....	131·8	123·2	74·6	63·4	....
1926	130·3	144·4	158·5	130·2	....	130·6	119·9	75·9	66·6	....
1927	127·3	138·6	149·4	127·8	....	131·2	119·9	74·6	65·3	....
1928	125·6	136·3	134·3	138·2	....	129·3	118·3	75·0	65·6	....
1929	124·6	140·8	137·2	144·4	....	127·9	117·6	75·8	67·1	....
1930	112·9	119·5	105·8	133·3	....	117·0	105·6	75·3	65·6	....
1931	94·0	78·9	65·0	92·7	....	100·9	92·2	67·9	51·4	....
1932	86·9	65·5	60·4	70·5	....	93·3	89·3	61·7	42·8	....
1933	87·4	69·3	69·3	69·2	....	89·8	88·8	58·8	42·3	....
1934	93·4	83·5	80·5	86·5	....	95·5	96·8	59·6	46·2	....
1935	94·4	89·2	84·4	94·1	88·0	95·4	95·6	59·9	47·2	85·6
1936	96·8	97·9	102·2	93·7	96·9	98·1	98·7	61·1	48·8	94·6
1937	107·7	117·4	128·9	106·0	119·7	105·3	108·4	63·0	51·4	108·0
1938	102·0	102·9	100·9	104·8	105·0	101·7	101·2	63·7	51·7	102·0
1939	99·2	92·6	83·7	101·5	91·8	99·3	95·7	63·2	50·2	109·7
1940	108·0	96·1	85·4	106·7	96·8	106·8	101·8	65·7	52·6	131·4
1941	116·4	106·6	88·9	124·4	110·2	116·1	107·8	69·6	57·9	164·8
1942	123·0	127·1	109·7	144·6	133·1	131·6	119·2	72·9	63·4	195·7
1943	127·9	145·4	129·0	161·8	157·8	143·4	122·4	74·2	65·2	208·5
1944	130·6	155·3	144·5	166·1	172·4	148·0	126·0	74·6	65·5	212·4
1945	132·1	166·4	162·5	170·2	185·7	152·1	125·9	75·0	66·3	187·2
1946	138·9	179·5	177·9	181·2	204·1	157·0	128·0	77·5	70·0	171·9
1947	163·3	192·2	184·1	200·2	215·8	170·4	139·5	84·8	79·5	187·8
1948	193·4	232·1	200·6	263·7	255·8	197·6	173·1	97·0	97·5	196·3
1949	198·3	228·7	191·9	265·4	255·4	204·1	180·3	100·0	100·0	199·6
1950	211·2	236·7	191·9	281·4	260·8	210·4	189·9	102·9	102·6	211·5
1951	240·2	268·6	200·4	336·9	296·8	230·0	206·0	113·7	117·0	226·5
1952	226·0	250·2	223·0	277·5	274·4	243·1	215·8	116·5	116·8	233·0
1953	220·7	221·6	179·4	263·8	250·4	234·8	207·4	115·5	112·6	248·4
1954	217·0	213·6	170·9	256·2	234·8	237·2	203·3	116·2	112·2	244·6
1955	218·9	209·7	174·4	245·1	228·5	238·3	204·6	116·4	112·1	265·8
1956	225·6	210·2	173·5	246·9	....	247·6	208·8	118·1	113·4	....
1956										
July	226·6	230·5	204·7	256·4	238·1	....	....	118·5	114·4	292·9
August	227·0	214·4	171·1	257·6	232·6	255·9	210·7	119·1	115·9	287·4
Sept	227·4	209·8	160·3	259·3	229·6	....	....	119·0	115·5	288·7
Oct	227·1	208·0	159·9	256·0	228·7	....	....	119·8	117·4	289·7
Nov	226·6	209·4	163·1	255·7	225·7	....	....	120·3	117·9	292·0
Dec	228·1	210·3	164·4	256·2	225·6	....	....	120·4	117·5	291·0
1957										
Jan	229·4	211·6	166·0	257·2	227·4	247·0	212·3	120.3	117.1	290·1
Feb	228·4	210·1	161·3	259·0	227·6	....	....	120·5	117·2	290·7
Mar	228·4	206·8	160·2	253·4	224·4	....	....	120·5	116·4	291·4
April	228·4	207·5	159·9	255·1	....	....	....	120·9	116·7	....
May	....	....	....	....	....	....	....	....	....	....
June	....	....	....	....	....	....	....	....	....	....

Source:—Dominion Bureau of Statistics, Ottawa.

(a) Prices at terminal markets.

(b) Indexes August 1955—July 1956 include final barley and oats payments announced November 15 and 29, 1956.

(c) Exclusive of living costs. Includes farm implements, building materials, gasoline, oil, greases, feed, fertilizer, binder twine, seed, hardware, tax rates, interest rates and farm wage rates.

(d) Differs from composite index by exclusion of tax rates, interest rates, and farm wage rates.

THE ECONOMIC SITUATION

Census of Agriculture.—The 1956 census of agriculture revealed increases since 1951 in Canada's farm population of cattle, sheep, hens and chickens and turkeys but decreases in horses, pigs, ducks and geese.

Total cattle numbers rose from 8.4 million to 11 million, increases being recorded in all provinces. Milk cows increased from 2.9 million to 3.2 million, all provinces except Newfoundland and Saskatchewan reporting gains.

The horse population declined to a record low of 784 thousand, or 40 per cent less than the 1.3 million reported in 1951. Decreases occurred in all provinces and only 55.3 per cent of the farms reported horses in 1956 compared with 72.5 per cent in 1951.

The number of pigs on farms dropped from 4.9 million in 1951 to 4.7 million in 1956, all but three provinces—Newfoundland, Saskatchewan and Alberta—reporting a smaller pig population. Sheep numbers increased from 1.5 million to 1.6 million, all provinces except Prince Edward Island and Nova Scotia contributing to the increase.

Numbers of hens and chickens increased from 64.6 million to 67.6 million and the count of turkeys almost doubled, from 2.5 million to 4.8 million. Duck numbers declined from 437.6 thousand to 420.7 thousand and geese numbers from 352.4 thousand to 326.1 thousand.

Foreign Trade.—Canada's commodity exports in March 1957 were valued at $361.8 million compared with $333.2 million in March 1956. The cumultative total for the first three months of the year was $1,112.8 million in 1957 and $1,051.4 million in 1956. Imports in March this year were estimated at $471.9 million compared with $463.5 million in March last year, and at $1,364.6 million in the first quarter of this year compared with $1,272.2 million in the corresponding quarter of 1956. The import surplus was reduced from $130.3 million in March 1956 to $110.1 million in March 1957. However, large increases in January and February 1957 contributed to an increase in the import surplus for the first quarter of the year from $220.8 million in 1956 to $251.8 million in 1957.

Sales to the United States and other foreign countries accounted for all of the increase in exports in March and in the first quarter of 1957. Shipments to the United Kingdom and other Commonwealth countries declined during the same periods. Imports from the United States declined in March 1957, reversing the trend that had prevailed for many months, but imports from the United Kingdom and the other two groups of countries increased. For the first quarter of the year, there was an increase in imports from the United Kingdom, other Commonwealth countries and the United States and a decline in imports from the remaining countries.

Total exports to the United States increased from $208.4 million in March 1956 to $226.4 million in March 1957 and total exports for the first quarter of the year from $641.6 million in 1956 to $659.6 million in 1957. Estimated imports declined from $361.7 million in March last year to $357.7 million in March this year but the total for the first quarter increased from $961.5 million in 1956 to $1,037.1 million in 1957. As a result, the import surplus dropped from $153.4 million to $131.3 million, from March 1956 to the same month in 1957, but increased from $319.9 million to $377.5 million from the first quarter of 1956 to that of 1957.

March shipments to the United Kingdom declined from $49.2 million to $44.2 million and first quarter shipments from $180 million to $160.3 million from 1956 to 1957. Estimated imports, on the other hand, continued the trend prevailing in recent months; they increased from $33.8 million in March 1956 to $43.2 million in the same month this year and from $97.8 million in the first quarter of last year to $113.5 million in the first quarter of 1957. The export surplus with the United Kingdom dropped from $15.4 million to $1 million from March to March and from $82.2 million in the first quarter of 1956 to $46.8 million in the corresponding quarter of 1957.

Prices.—Canada's consumer price index rose from 120.5 to 120.9 between March and April 1957 and stood 3.7 per cent above the April 1956 index of 116.6. An advance of 0.7 per cent in the "other" commodities and services component of the index from 124.2 to 125.1 accounted for most of the increase in March of this year. The food component increased 0.3 per cent from 116.4 to 116.7; sharply higher prices were recorded for tomatoes, lettuce, cabbage and smaller increases for fresh fruits, sugar, bread, chocolate bars and beef. Prices were lower for potatoes, celery, tea, coffee, eggs, bananas and pork.

Canada's wholesale price index (1935-39=100) stood at 228.4 in March 1957, the same level as in February, but 2.3 per cent above the level for March 1956. The wood products group index rose from 297.9 to 301.0 in February, and the textile products index from 235.2 to 235.5.

The sharpest decline was registered by the animal products group, the index for that group falling from 238.4 to 236.3 mainly because of lower prices for hogs, fresh and cured pork, sheep and lamb skins, and tallow which outweighed higher prices for steels, beef carcasses and poultry. The vegetable products index declined from 200.7 to 200.4 as lower prices for grains, potatoes, onions, canned tomatoes, tea, coffee, cocoa beans and cocoa butter counterbalanced higher prices for sugar, raw rubber, rubber footwear, hay and oranges.

The index of Canadian farm product prices dropped from 210.1 in February to 206.8 in March 1957 mainly because of a fall in the animal products groups from 259.0 to 253.4; the field products group dropped from 161.3 to 160.2. Sharply lower prices for hogs and with smaller declines for western lamb and eggs and eastern calves outweighed increases for steers and raw wool, eastern poultry, eggs, lambs and western calves and fluid milk.

The usual seasonal decline in farm wage rates was solely responsible for a 1.8 per cent decline in the all-Canada composite price index of commodities and services used by farmers from 236.0 to 231.7 between August 1956 and January 1957. The index, however, was 3.9 per cent above the 223.1 figure for January 1956. The composite index, exclusive of farm family living, dropped from 255.9 in August 1956 to 247.0 in January 1957 but advanced from the January 1956 level of 236.3.

Seasonal changes in farm wage rates were reflected in the total wage-rate index which moved down 11.5 per cent to 453.8. The western series declined 21.9 per cent to 419.2 and the eastern series 3.5 per cent to 478.2. The index for farm operating equipment and materials rose 0.8 per cent to 212.3 between August 1956 and January 1957.

The farm family component rose from 206.2 to 208.6 in January 1957, compared with 203.2 in January 1956.

Farm Income.—Farm cash income from the sale of farm products and from participation payments on previous years' grain crops, in 1956, is estimated at $2,662.1 million compared with $2,357.1 million in 1955 and to the all-time high cash income estimate of $2,849.3 million in 1952.

Cash income in 1956 increased in all provinces, the increases ranging from less than one per cent in Ontario to about 40 per cent in Saskatchewan. Higher returns from the sale of grains, cattle, hogs, poultry and eggs and larger grain participation payments contributed largely to the increase in cash income in 1956 over 1955. Supplementary payments made under the provisions of the Prairie Farm Assistance Act to farmers in western Canada totaled about $5 million in 1956 compared with $33.3 million in 1955.

As a result of greatly increased marketings and higher average prices, cash income from the sale of wheat in 1956 amounted to about $460 million or about 40 per cent above the $329.5 million realized in 1955. This increase of about $130 million represents the largest contribution of any single commodity to the gain in total cash income. Wheat participation payments totaled nearly $62 million in 1956 compared with $26 million in 1955.

Marketings of oats and barley also increased substantially and provided farmers with a total cash income of about $150 million compared with nearly $98 million in 1955.

Total cash income from the sale of livestock in 1956 is estimated at $736.6 million, compared with $702.9 million in 1955. Higher returns from the sale of cattle and hogs were almost the sole contributors to this increase. Higher cattle marketings more than offset slightly lower prices for cattle. An increase in hog marketings and prices contributed a total income of about $302 million; income from this source in 1955 totaled $289.6 million.

Dairy products set an all-time high, income from the sale of these products rising from $438.4 million in 1955 to a record $445.9 million in 1956. Somewhat larger quantities were marketed at slightly higher prices. Farm cash returns from the sale of eggs increased from $132.6 million in 1955 to $143.8 million in 1956. Cash income from the sale of poultry meat increased from $150.5 million in 1955 to a new high of $161.2 million in 1956.

RESEARCH IN CROP ROTATIONS AND FORAGE

KNUD ELGAARD

Research in crop rotations and forage has been conducted in Alberta by several groups and individuals, in some cases for as long as fifty years. The Experimental Farms Service has studied a variety of rotations at several points throughout the Province. Field experiments in crop rotations, clovers and fertilizers, have been made in the grey soil areas by the University of Alberta. The Economics Division (and other government agencies) has, from time to time, carried out research projects involving the study of rotations. Perhaps the greatest researcher of them all has been the farmer who, in his own way, has experimented with rotations for many decades.

The major part of this article will be confined to a review of recent studies on the park land areas of Alberta, made by the Economics Division, in co-operation with the Experimental Farms Service. The main objective of these studies was to compare the practice of summerfallowing with substitute practices involving a more intensive use of the land. The practices specifically studied have been the substitution of forage crops for cereals and more particularly for summerfallow. Two paramount questions confronted the researchers: the relative profitability to the operator of these alternative practices and the implications, for agriculture as an industry and the individual farm, of the adoption of new rotations.

The cropping sequence which has prevailed for many years in the black soil zone of central Alberta is based on summerfallow and grain, the typical rotation being one year of summerfallow followed by three years of cereal crops. A few farmers in the western sector of the black soil zone have, however, recently adopted a six-year forage-grain rotation (three years of forage and three years of grain crops)[1] to eliminate the summerfallowing practice. In order to study these two contrasting systems of land use a survey of 36 one-half section farms was made by the Economics Division in 1954. The farms were selected on the basis of land use, one-half of them being forage-grain farms and one-half summerfallow-grain farms. Both groups of farms, in the sample, were similar with regard to size of farm, soil, climatic and other physical characteristics. Differences in the financial aspects of the farm business could therefore be attributed with greater probability to factors over which the operator would have more control, such as land use, farm organization and cultural practices.

In 1954 average returns to capital and family labor earnings, on half section farms, were about $3,400 per farm for the forage-grain farms and $750 for the summerfallow-grain farm (Table 1). After deduction of all expenses, including the cost of maintaining capital, this is the amount available for family living and savings. The difference in average total earnings, between the two groups, was $2,650.

These earnings, however, include returns from the swine and poultry enterprises which could be considered as having no direct relationship with the question of whether forage should or should not be substituted for summerfallow. Cattle and sheep are required on the farm to dispose of the forage. When swine and poultry receipts and all expenses which are specific to these two enterprises are deducted from the whole farm business account, the returns to capital plus family labor earnings amount to $1,670 for the forage-grain farms and $290 for the summerfallow-grain farms, a difference of about $1,380. If, instead of 1954 yields,[2] average yields for the 1950-54 period are used to calculate income, and expense adjustments are made for the handling of the increased production, the returns to capital plus family labor earnings then amount to about $4,260 for the forage-grain farms and $2,230 for the summerfallow-grain farms, a difference of $2,030. If the swine and poultry enterprises are excluded from the calculations the difference is reduced to $750. These differences in returns to capital plus family labor earnings are all in favor of the forage-grain farms and appear to be significant.

---

[1] There were also some modifications of the typical six-year forage-grain rotation.
[2] The 1954 yields were low as compared with the long-term average yields.

The Federal Experimental Station at Lacombe has, for many years, been experimenting with three and four-year rotations of fallow and grain crops, intertilled crops and grain, and continuous grain crops. From their observations of these rotations the researchers concluded that, "There appears to be little justification for summerfallowing on the black and grey soils in central Alberta unless it is necessary to control certain weeds or facilitate a certain farming program".[1]

Table 1.—Return to Capital and Family Labor Earnings by Farm Enterprise, 19 Forage-Grain and 17 Summerfallow-Grain Farms, Western Parkland Region, Alberta, 1954.[a]

—	One-half section farms	
	Forage-grain	Fallow-grain
	—dollars—	
1954 returns:		
Field crop enterprise	1,467	253
Cattle enterprise	85	36
Sheep enterprise	119	4
Swine enterprise	1,473	395
Poultry enterprise	256	61
Whole farm business	3,400	749
Whole farm business excluding swine and poultry enterprises	1,671	293
1950-54 returns:		
Whole farm business	4,259	2,234
Whole farm business excluding swine and poultry enterprises	2,530	1,778

[a] All receipts were distributed among the five enterprises according to the sources of these receipts; miscellaneous revenue such as custom work receipts, imputed house rent and value of garden were allocated to the field crop enterprise. All expenses (with the exception of repairs and depreciation on buildings) which were "specific" to the livestock enterprises were allocated to these enterprises, otherwise they were considered as field crop expenses. An expense is specific to an enterprise if it becomes non-existent when the enterprise is non-existent. Building expenses were distributed according to the enterprise which used the buildings.

The Lacombe Station has also experimented on a field basis with two "mixed farming rotations" for the last 45 years. One is a seven-year rotation of (1) potatoes, (2) wheat, (3) oats, (4) fallow, (5) wheat, (6) hay, (7) hay. The other is a six-year rotation of (1) corn, (2) wheat, (3) barley, (4) hay, (5) hay, and (6) hay. These two rotations are reported to "have shown an outstanding advantage over the grain rotation" with respect to yields and the control of weeds, particularly wild oats.

The Soils Department of the University of Alberta has been conducting rotation experiments and fertilizer trials on grey soils in west-central Alberta for 25 years.[2] The results indicate that yields are much greater in a forage-grain rotation than in fallow-grain rotation. The results also show that grain have about doubled and forage yields have increased from four to five times by the use of better fertilizers.

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[1] Canada Department of Agriculture, Experimental Farm Service, Lacombe, Alberta, *Progress Report, 1937-1946,* p. 40.

[2] University of Alberta, Faculty of Agriculture, *Wooded Soils and Their Management,* 1948.

The study conducted by the Economics Division and the field experiments made by other agencies indicate that forage has great value as a substitute to summerfallowing. There is little doubt that the farmers, included in the study, who made the change to a forage-grain rotation expected to benefit from the new rotation. All of them gave two or more of the following reasons for making the changes: (1) control of soil erosion, (2) increase in income, (3) addition of fibre to the land and (4) improvement of soil fertility. Nevertheless, the number of farmers on the black and grey soils of Central Alberta who follow a planned forage-grain rotation represent a very small part of the total. Even in the immediate locality where field experiments in rotations have been conducted, farm operators have not adopted the forage-grain cropping pattern which has been demonstrated as the most beneficial. Apparently it is not that farmers have no desire to substitute forage for summerfallow for when the summerfallow-grain farmers were questioned as to "what they would consider as a desirable rotation for their farms" at least two-thirds of them mentioned a forage-grain rotation as being more desirable than their present summerfallow-grain rotation. Evidently there are economic obstacles to a more general adoption of a forage-grain rotation by farmers in central Alberta, where such a rotation appears practicable.

Table 2.—Land Utilization, 19 Forage-Grain and 17 Summerfallow-Grain Farms, Western Parkland Region, Alberta, 1954

—	One-half section farms, 1954			
	Forage	Fallow	Forage	Fallow
	—acre—		per cent—	
Grains:				
Wheat	6	22	2	8
Oats	43	50	16	19
Barley	79	84	29	31
Other	2	2	1	1
Total	**130**	**158**	**48**	**59**
Forages:				
Hay	64	6	23	2
Pasture	37	9	13	3
Forage and breaking	18	—	7	0
Total	**119**	**15**	**43**	**5**
Summerfallow	26	96	9	36
Breaking	1	1	—	—
Total, Cultivated	**276**	**270**	**100**	**100**
Total, Occupied	**319**	**316**		

A brief look at land use, capital and labor requirements and tenure arrangements on the farms included in the study will point to some of the main problems for the farm operator who contemplates the adoption of a forage-grain rotation as a substitute for a summerfallow-grain rotation. An examination of the land utilization pattern (Table 2) on the one-half section farms shows that there are still small acreages of summerfallow on the forage-grain farms, partly because their operators have only recently adopted the new rotation and are still in the process of reorganization. It may also be noted that forage was substituted mainly for summerfallow, and also for grain crops.

A tabulation of farm capital shows that there are similarities in certain categories of farm investment between the two groups of farms and marked differences in others. Both the forage-grain and summerfallow-grain farms

Table 3.—Investment in Farm Capital and Current Assets, 19 Forage-Grain and 17 Summerfallow-Grain Farms, Western Parkland Region, Alberta, 1954

—	One-half section farms, 1954	
	Forage	Fallow
	—dollars—	
Fixed farm capital:		
Land	15,900	15,280
Buildings	6,930	3,790
Machinery	8,330	6,280
Livestock[a]	3,060	940
Total fixed capital	34,220	26,290
Operating farm capital:		
Livestock	2,840	930
Seed and feed	4,470	3,420
Total operating capital[b]	7,310	4,350
Total farm capital	**41,530**	**30,640**
Landlords' investment	1,090	5,030
Operators' investment	40,440	25,610
Operators' indebtedness	3,990	3,030
Operators' equity in farm capital	36,450	22,580
Other current assets[c]	1,800	3,200

[a] Breeding stock only.

[b] The operating capital values are not average annual values as is the case with the fixed capital values; because the record year was from October to October the seed and feed item is particularly high as it includes all current year's production.

[c] Includes cash, stocks and bonds and accounts receivable.

have similar land values, a similar investment in buildings used for grain storage and equipment housing, and a similar investment in farm power and in tillage and grain harvesting machinery. But the forage-grain farms have a much larger investment in livestock shelter, in forage-harvesting, livestock and feed handling equipment, and in all livestock enterprises. The difference in investment in these categories of farm capital is about $6,000; larger supplies of feed are also kept on hand. This increased investment seems necessary in order to produce and dispose of the forage. The problem, for the farmer who adopts the new forage rotation, is to accumulate the additional capital required either before or during the process of reorganization.[1] In some cases this may decrease the sum available for family living while capital is being accumulated for farm expansion. In the study made by the Economics Division the forage-grain farmers were asked what the limitations or disadvantages of a forage-grain rotation were. Two-thirds of them mentioned the higher capital and labor requirements.

Table 4.—Total Labor per Farm, 19 Forage-Grain and 17 Summerfallow-Grain Farms, Western Parkland Region, Alberta, 1954

—	Forage	Fallow
	—hours—	
Operator and family	3,310	2,530
Hired	480	90
Total	**3,790**	**2,620**

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[1] Part of the current liquid assets and operating farm capital (shown in Table 3) would be available for reorganization and expansion of the farm business.

Concerning labor requirements it was found (Table 4) that the operators of forage-grain farms spent an average of about 3,790 hours of labor per farm compared with 2,620 hours on the summerfallow-grain farms. The difference in labor requirements amounts to about four to four and one-half months. About two-thirds of this additional labor used on the forage-grain farms was supplied by the operator and his family.

With respect to tenure, about four-fifths of the rented land was in the summerfallow-grain group of farms. This is understandable, as a rotation which includes a considerable acreage of forage crops is primarily a long-term proposition. Many of the beneficial effects of expenditures on forage crops and related enterprises will not take effect immediately. A forage and related enterprises program requires security of tenure—a greater security of tenure than is prevalent in leasing arrangements generally used in the grain producing areas of the province. Neither is the common share-crop leasing arrangement of grain producing areas easily adapted to a long-term forage and livestock program. The most suitable tenure arrangement necessary to encourage a long-term farming program is presently provided only in ownership and in some father-and-son leasing agreements.

These, then, are some of the problems to be considered by the farm operator in central Alberta who contemplates substituting forage for summerfallow. No doubt (when budgets are set up from the data available) additional knowledge will be required and obtained regarding the obstacles to a more general adoption of a more intensified pattern of land use in this region. The effects of different price-cost and price-ration relationships call for special and careful investigation.

THE CAPITAL STRUCTURE OF CANADIAN AGRICULTURE

Baldur H. Kristjanson

This is the first, in a series of two articles reporting the results of a study of investment patterns in Canadian agriculture. These articles are based on the Agricultural Census, 1921-51, and detailed investigations conducted over the years by the Economics Division.

There are several reasons for undertaking this study at the present time. For one thing, Canadians are showing a keen interest in resource development. Agriculture, being one of our most important and basic resources, is obviously a part of this interest. To appraise the resources in agriculture one must begin with a reasonably accurate description of the existing capital structure of the industry.

Second, the Census of Canada will not provide estimates of capital values on farms in 1956. The 1951 Census therefore remains the most recent record of capital values on farms. It seems desirable to explore the uses to which information on farm capital obtained in the 1951 Census can be put, what deficiencies exist and what improvements can be made in providing information on capital investment in agriculture.

Third, the recent publication of Census information on a type-of-farming basis provides an opportunity to examine capital investment in agriculture on a type-of-farming basis[1]. Furthermore, recent studies carried on by the Economics Division make it possible to examine, in some detail, the capital structure of the major types of farms.

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[1] Lane, G. A., and J. G. Carson, *Agricultural Statistics by Type of Farming Areas,* Economics Division, Marketing Service, Canada Department of Agriculture, Ottawa, Publication 56/18—April, 1956.

Finally, there is need to keep up-to-date our inventory of knowledge of such a basic characteristic of the economy as the investment in agriculture.

There are some very real problems inherent in any attempt to describe the capital structure of Canadian agriculture. Farming in Canada is so diverse in terms of soil, climate, size of operation, types of production and methods of operation that one is tempted to despair of obtaining a useful description. On the other hand, there are patterns which are distinguishable and which permit rough approximation. We shall seek to establish these patterns.

Another problem relates to the task of obtaining reasonable estimates of value. The Census is the basic source of information and it provides us with farmers' estimates of real estate, machinery and livestock values. Now, while these are not necessarily accurate in an absolute sense, we do have confidence in these estimates on a comparative basis.

Estimates for Canada, Regions and Provinces.—The use of Census information, on a comparative basis, is demonstrated in Table 1. It is readily apparent that important shifts in the investment structure have taken place, notably between 1941 and 1951. Land and buildings represent a considerably smaller part of the total investment in agriculture than in former years. The change is marked between 1941 and 1951. The two western regions show a greater shift to more investment in machinery while the two eastern regions have placed more emphasis on livestock.

Table 1.—Changes in Land, Machinery and Livestock Investment on Farms in Canada and Regions, 1921-51[a]

—	Land and buildings	Implements and machinery	Livestock and poultry	Total
	—per cent—			
Canada—				
1921	77.1	10.1	12.8	100
1931	77.2	12.4	10.4	100
1941	71.4	14.1	14.5	100
1951	58.4	20.4	21.2	100
Atlantic Region—(Newfoundland[b], Prince Edward Island, Nova Scotia and New Brunswick)				
1921	75.5	9.6	14.9	100
1931	75.8	11.9	12.3	100
1941	73.1	13.0	13.9	100
1951	61.4	16.8	21.8	100
Central Region—(Quebec and Ontario)				
1921	76.9	10.2	12.9	100
1931	77.2	11.0	11.8	100
1941	71.5	12.2	16.3	100
1951	57.4	16.7	25.9	100
Prairie Region—(Manitoba, Saskatchewan and Alberta)				
1921	76.9	10.5	12.6	100
1931	77.0	14.1	8.9	100
1941	70.8	16.3	12.9	100
1951	58.1	24.4	17.5	100
British Columbia—				
1921	85.6	4.5	9.9	100
1931	82.9	7.4	9.7	100
1941	76.0	10.0	14.0	100
1951	68.1	14.5	17.4	100

[a] Source: Dominion Bureau of Statistics, *Handbook of Agricultural Statistics* Reference Paper No. 25—Part. III, August 1955.

[b] Newfoundland data included in 1951 only.

Table 2.—Changes in Capital Investment on Farms in Canada Corrected For Changes in General Price Level, 1921-51[a] (1951=100[b])

Year	Total	Land and buildings	Implements and machinery	Livestock and poultry
	—million dollars—			
1921	11,537	8,489	1,117	1,404
1931	14,435	10,376	1,666	1,393
1941	8,736	6,242	1,228	1,269
1951	9,471	5,527	1,933	2,010

[a] SOURCE: Dominion Bureau of Statistics, *Handbook of Agricultural Statistics* Reference Paper No. 25—Part III, August 1955.

[b] Corrected for changes in the general wholesale price index as reported by the Dominion Bureau of Statistics.

The declining position of real estate in the agricultural investment picture is seen in bolder relief in Table 2. Here the investment in each type of capital is shown in terms of the purchasing power of the dollar in 1951 for the period 1921 to 1951. In these terms the real estate values reported by farmers was higher both in 1921 and 1931 than in 1951. Machinery and livestock investment on the other hand has increased since 1921 both in absolute and relative terms.

Differences between provinces as they existed in 1951 can be seen from Table 3. These differences are quite substantial. For example the average investment per farm in Alberta was three times as great as in Nova Scotia and double that of Quebec. Differences in machinery investment are even greater. New Brunswick has only one-fourth of the investment in machinery per farm shown by the Prairie Provinces. Livestock presents less marked differences but they remain considerable. Ontario and Alberta take the lead in livestock investment per farm.

Figures on investment, on a type-of-farming basis, are not directly available. However, an approximation can be made through data on the distribution of farms and farm land by types of farming. The data presented in Table 4, for example, indicate that about one-third of all land in farms and 27 per cent of all the cultivated acreage was in livestock type-of-farming areas in 1951. It is significant that 50 per cent of all farms in Canada were in this group. Mixed farming, on the other hand, with only 30 per cent of our farms, accounted for 37 per cent of all land in farms and 36 per cent of the cultivated

Table 3.—Investment Components On Farms in Canada By Provinces, 1951[a]

Province	Land and buildings	Implements and machinery	Livestock and poultry	Total investment per farm
	—dollars—			
Newfoundland	4,042	391	988	5,421
Prince Edward Island	4,720	1,604	2,274	8,598
Nova Scotia	4,018	1,073	1,393	6,484
New Brunswick	3,734	1,020	1,214	5,968
Quebec	6,305	1,578	2,534	10,417
Ontario	9,467	2,970	4,558	16,995
Manitoba	10,096	4,425	2,980	17,501
Saskatchewan	10,560	4,693	2,528	17,781
Alberta	12,042	4,625	4,558	21,225
British Columbia	10,531	2,225	2,705	15,461
Canada	**8,871**	**3,103**	**3,226**	**15,200**

[a] SOURCE: Census of Canada, 1951.

Table 4.—Distribution of Total Number of Farms in Canada by Types of Farming, 1950[a,b]

Type of farming	Per cent of all land in farms	Per cent of all cultivated acreage	Per cent of all farms
	—per cent—		
Livestock	33	27	50
Mixed	37	36	30
Grain	28	36	15
Fruits and vegetables	1	1	4
Forestry	1	*	1
Total	**100**	**100**	**100**

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* 0.5 per cent or less.

[a] Census of Canada, 1951. A more detailed classification is available in Lane, G.A. and J. G. Carson, *op. cit.*

[b] Types of farming based on sources of gross farm revenue. Any Census Subdivision reporting 70 per cent or more of its gross farm revenue from livestock and livestock products (including poultry) was classified as a livestock type of farming area. Similarly, grain areas were those reporting 70 per cent or more from the sale of grain. Mixed farming areas were those reporting less than 70 per cent of revenue from the sale of either crops or livestock but not more than 50 per cent from the sale of special crops such as fruits, vegetables and forestry products. Fruit and vegetable areas were those reporting 50 per cent or more of gross revenue from sale of fruits and vegetables and other minor specialty crops. Forestry farm areas were those having 50 per cent or more of their gross revenue from the farm sale of forestry products.

acreage. It would appear reasonable to conclude from these figures that these two types of farming account for the major part of agricultural investment and that they represent similar amounts of aggregate investment.

Tables 5 and 6 give the same information by provinces, and regions. Prince Edward Island, Nova Scotia, Quebec and Ontario display a preponderance of livestock farming. The relative insignificance of mixed grain—livestock farming in Ontario and Quebec is in sharp contrast to Newfoundland, New Brunswick,, Manitoba and Alberta.

In some respects, the regional distribution of types of farming (and of investment by inference) is likely to be more accurately reflected by the incidence of cultivated acreage rather than all land in farms. Table 6 provides data on the basis of cultivated acreage.

There is a marked regional concentration in types of farming. The Prairie Region accounts for practically all of the specialized grain acreage and most of the mixed farm acreage. The Central Region (Ontario and Quebec) takes a strong lead in livestock, fruits, vegetables and forestry. The Atlantic Region and British Columbia show strength in fruits and vegetables although their combined acreage in this type of production is only one-third of that of the Central Region.

Table 5.—Proportion of Total Farm Land Area in Each Major Type of Farming by Provinces, 1950[a,b]

Province	Livestock	Mixed	Grain	Fruits and vegetables	Forestry	Total
	—per cent—					
Newfoundland	26	70	*	4	*	100
Prince Edward Island	73	27	*	*	*	100
Nova Scotia	62	34	*	4	*	100
New Brunswick	36	50	*	6	8	100
Quebec	76	18	*	1	5	100
Ontario	90	5	*	5	*	100
Manitoba	12	56	32	*	*	100
Saskatchewan	5	38	57	*	*	100
Alberta	27	55	18	*	*	100
British Columbia	65	15	9	11	*	100

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* 0.5 per cent or less.

[a, b] See footnotes, Table 4.

Table 6.—Regional Distribution of Types of Farming in Terms of Proportion of Cultivated Acreage, Canada and Regions, 1950[a],[b]

Types of Farming	Region				
	Atlantic	Central	Prairie	British Columbia	Total
	—per cent—				
Livestock	5	71	22	2	100
Mixed	2	6	91	1	100
Grain	*	*	100	*	100
Fruits and vegetables	12	78	1	9	100
Forestry	16	84	*	*	100

* 0.5 per cent or less.
[a], [b] See footnotes, Table 4.

It is well to remember that a comparison of acreage—whether total or cultivated—has its limitations for purposes of inferring capital investment by type-of-farming areas. Land productivity varies from one region to another within the same type of farming. Land productivity and therefore, land value, differ also between types of farming. Then too, there is a downward bias for types of farming such as fruits, vegetables and forestry. This bias is inherent in the method of classification inasmuch as these types are likely to be submerged in other types. It should be noted that the "fruits and vegetables" category Prince Edward Island in Table 5 fails to give an accurate picture with respect to the acreage in these crops. The 1951 Census, for example, reports an acreage of potatoes and other root crops equal to about five per cent of the total area in farm and 12 per cent of the cropland. Many dairy farms in Ontario and Quebec have small acreages of orchard and vegetables but it is much less likely that specialized vegetable growers have a few dairy cows. Therefore the acreage of these relatively minor crops tends to be submerged by the more important types of farming when the classification is based on Census subdivisions rather than individual farms.

Table 7.—Distribution of Cultivated Acreage in Farms by Types of Farming, Canada and Regions 1950[a],[b]

Region	Types of Farming					
	Livestock	Mixed	Grain	Fruits and vegetables	Forestry	Total
	—per cent—					
Atlantic	55	37	*	6	2	100
Central	85	10	*	4	1	100
Prairie	8	44	48	*	*	100
British Columbia	53	22	16	9	*	100
Canada	**27**	**36**	**36**	**1**	*	**100**

* 0.5 per cent or less.
[a], [b] See footnotes, Table 4.

Table 7 was set up to illustrate the relative significance of each type of farming within regions. While one-half of the farms in Canada are in livestock areas (Table 4) only about one-fourth of the cultivated acreage occurs within livestock type-of-farming areas. This is accounted for by the fact that farms in the Prairie Regions have a much higher cultivated acreage per farm than do farms in the other regions.

SOME ASPECTS OF FARM ORGANIZATION IN WEST CENTRAL MANITOBA, 1956

T. O. Riecken

West central Manitoba is generally considered as a mixed farming area where grain farms also exist alongside of grain-livestock farms. The cattle enterprise is the major livestock enterprise and is managed as a beef-cattle-cream sales business.

The Economics Division has collected data on farm organization and sources of income from a group of farms in the area. These farms were two, three and four quarter-section farms located on Newdale association soils in the general area from Neepawa west and north of Russell. About two-thirds of the land area is arable and the non-arable land consists mostly of hay sloughs and meadows and wooded areas. The area is well suited, climatically, for the production of the common cereal and forage crops grown in Manitoba. The average annual yield of wheat is about 25 bushels per acre. Every type of commercial livestock produced within the province is also produced in the area.

The information was obtained by means of interviews with farm operators. Business records were compiled and then divided into two size groups, one including the two quarter-section farms and the other the three and four quarter section farms. Each size group was further classified according to type of farm. Grain farms were those which secured at least 70 per cent of their current receipts from the sale of grain and grain-livestock farms those which derived less than 70 per cent of their current receipts from the sale of grain. Grain supplied from 21 to 100 per cent of the receipts on different farms and 75 per cent of the farms derived between 50 to 90 per cent of their receipts from this source.

The Business Year, 1955-56.—The period covered by the study was from "after harvest" 1955 to "after harvest" 1956. Receipts from grains were for the crop planted and harvested in 1956 and those from livestock were based on the sale of livestock and livestock products from "after harvest" 1955 to "after harvest" 1956.

For all the farms visited, wheat averaged about 32 bushels per seeded acre in 1956, oats nearly 51 bushels, and barley 31 bushels per seeded acre. Grain yields were about 20 per cent higher than the long-time average yields but the grades were low because of unfavorable weather during the harvesting season. The wheat grades most commonly reported were No. 4 Northern and No. 5 Northern.

Land Use.—Less than two-thirds of the total area of the farms was under cultivation and there was some variation in land use according to size and type of farm (Table 1). Barley was the most important crop, followed by wheat and oats. Nearly 90 per cent of the farmers grew wheat, 95 per cent grew oats, and nearly 95 per cent grew barley. Flax was grown on about 20 per cent of the farms and rye on only a few farms. On 87 per cent of the farms wheat was grown as the first crop after summerfallow. Barley was grown about equally on summerfallow, 55 per cent, and as the second crop after summerfallow, 45 per cent. About 75 per cent of oats was a stubble crop. All farms had some summerfallow, which averaged more than one-third of the cropland. Barley was more important on grain farms than on grain-livestock farms, indicating its use as a cash crop as well as a feed. Also, flax was more important on the grain farms. Tame hay and pasture, although not very important in the over-all land use picture, covered about three times as great an area on the grain-livestock farms as on the grain farms.

Livestock.—All but two of the farms kept some livestock but 12 farms had no horses, four had no cattle, 21 had no hogs, and 10 farms had no poultry.

Table 1.—Land Utilization, According to Size and Type of Farm, West Central Manitoba, 1956

Use	Two quarter-sections		Three and four quarter-sections	
	Grain	Grain-livestock	Grain	Grain-livestock
	—average acres per farm—			
Wheat	44	32	65	59
Oats	29	40	54	46
Barley	52	40	85	60
Flax and rye	4	[a]	20	10
Hay and pasture	5	13	10	30
Summerfallow	71	74	114	116
Total cropland	205	199	348	321
Farmstead and unimproved	118	121	196	220
Total farm area	**323**	**320**	**544**	**541**
Number of farms	**21**	**19**	**24**	**18**

[a] Less than 0.5 acres per farm.

Only two farms had sheep. Cattle numbers were about 60 per cent greater on the two quarter-section grain-livestock farms than on grain farms of the same size (Table 2). Hog enterprises were about twice as big and poultry enterprises about three times as big on the grain-livestock farms as on the grain farms. Cattle was the most important enterprise, on the average, but on some individual farms hogs or poultry were more important.

Farm Labor.—The grain-livestock farms employed more labor than the grain farms (Table 3). The farm family, including the operator, provided all of the labor on about 44 per cent of the farms. There was no unpaid family labor on about 25 per cent of the farms. The family, excluding the operator, provided only up to three months of labor on nearly 50 per cent of the farms and more than three months on the remaining 25 per cent. Hired labor exceeded more than one month on about 20 per cent of the farms. The operator was the sole source of labor on only three of the 82 farms; on the average, nearly three of every five farms had a total labor supply of less than 15 months.

Farm Capital.—The average total investment in real estate, machinery and livestock was higher on grain-livestock than on grain farms of the same size (Table 4). The real estate, including the value of the rented land, averaged $40.87 per total acre on the two quarter-section grain-livestock farms compared with $39.59 for grain farms of the same size. On the larger grain-livestock

Table 2.—Average Numbers of Livestock, According to Size and Type of Farm, West Central Manitoba, 1956

Type	Two quarter-sections		Three and four quarter-sections	
	Grain	Grain-livestock	Grain	Grain-livestock
	—average numbers per farm—			
Horses	1.6	2.4	2.2	2.2
Cows	6.0	7.4	7.7	13.8
All cattle	12.4	19.5	15.9	34.6
All sheep	—	0.2	0.3	2.6
Sows	0.4	0.7	0.8	1.4
Other hogs	2.2	7.5	2.6	13.7
Hens	32.0	99.0	60.0	86.0
Other poultry	4.0	28.0	8.0	7.0
Number of farms	**21**	**19**	**24**	**18**

Table 3.—Amount of Labour Used on Farms, According to Size and Type of Farm, West Central Manitoba, 1956

Type of Labor	Two quarter-sections		Three and four quarter-sections	
	Grain	Grain-livestock	Grain	Grain-livestock
	—average months per farm—			
Hired labor	0.15	1.00	1.03	2.03
Unpaid family	0.90	2.59	2.70	6.05
Operator	12.00	12.00	12.00	12.00
Total	**14.05**	**15.59**	**15.73**	**20.08**
Man equivalents	**1.17**	**1.30**	**1.31**	**1.67**
Number of farms	**21**	**19**	**24**	**18**

farms, the average real estate value was $38.51 per total acre compared with $40.54 per total acre on the grain farms. These values would suggest that the grain-livestock farms did not have any significantly greater number of buildings for livestock, or if they did have, the buildings did not add significantly to the average farm values.

The average machinery investment per cropland acre, $20.51, was lowest on the large grain-livestock farm and highest, $22.59 per cropland acre, on the two quarter-section grain farms. The larger grain-livestock farms had more specialized haying equipment than the smaller farms. The average figures, for the four groups, did not show much difference in machinery requirements with variations in sizes of farms. However, the investment in machinery ranged from a low of $1,525 on one farm to a high of $13,216 on another farm. Two-thirds of the farms had machinery investments ranging from $3,100 to $8,700 per farm.

Investment in livestock was, of course, higher on the grain-livestock than on the grain farms. Total investment was about $4.00 per total acre higher on the grain-livestock farms than on the grain farms within both sizes of farm groups. In addition to the three classes of capital listed here, there were investments in seed, feed and farm supplies.

Farm Receipts.—In computing the receipts from crop sales, the value of the 1956 crop was calculated by estimating final prices for each kind of grain. The grades reported by the farmers were used in those calculations. From the value of the 1956, crop, a deduction was made for the value of seed and

Table 4.—Average Farm Capital, According to Size and Type of Farm, West Central Manitoba, 1956

Types	Two quarter-sections		Three and four quarter-sections	
	Grain	Grain-livestock	Grain	Grain-livestock
	—average dollars per farm—			
Real estate	12,786	13,079	22,054	20,833
Machinery and equipment	4,666	4,372	7,138	7,252
Livestock	1,396	2,519	1,743	4,617
Total	**18,848**	**19,970**	**30,935**	**32,702**
Number of farms	**21**	**19**	**24**	**18**

feed. It was assumed that all grain would be used for seed, feed or sold. Livestock inventory changes were included as a receipt.

Total cash farm receipts were about six per cent higher on the two quarter-section grain farms than on grain-livestock farms of the same size (Table 5). On the larger farms, grain farm receipts were about three per cent higher than on the grain-livestock farms. The grain farms of both sizes averaged nearly 88 per cent of the receipts from grain, and the grain-livestock farms averaged about 62 per cent of total receipts from grain. On the grain farms, oats and barley accounted for about one-half of the receipts and wheat about one-third. Cattle sales and cream and milk made up about 20 per cent of the receipts on the grain-livestock farms. Although about 90 per cent of the farms kept some poultry, it was not an important source of income.

Table 5.—Farm Receipts, According to Size and Type of Farm, West Central Manitoba, 1956

Source	Two quarter-sections		Three and four quarter-sections	
	Grain	Grain-livestock	Grain	Grain-livestock
	—average dollars per farm—			
Wheat	1,586	1,081	2,325	2,117
Oats and barley	2,308	1,608	3,401	1,957
Flax, rye	163	8	507	176
Cattle	283	525	506	1,135
Hogs	53	279	80	617
Poultry	12	161	42	54
Sheep, horses	2	15	12	11
Livestock inventory increase	57	236	13	210
Cream	108	195	132	334
Eggs	44	230	60	195
Custom work and other	9	12	23	106
Total	**4,625**	**4,350**	**7,101**	**6,912**
Number of farms	**21**	**19**	**24**	**18**

Farm Expenses.—The total of cash farm expenses and depreciation for buildings and machinery was higher by about six per cent on the two quarter-section grain-livestock farms than on the grain farms of the same size (Table 6). On the larger farms, the difference was about 11 per cent. Expenses for real estate, including taxes and machinery, were higher by smaller amounts on the grain farms than on the grain-livestock farms. On the other hand, expenses for wages and board of hired labor, livestock, hydro and telephone were higher on the grain-livestock farms of both size groups. Livestock costs included purchases of livestock and poultry, as well as feed, veterinary services and supplies, breeding fees and pasture rent. There was no consistent pattern for crop expenses, custom work or machinery depreciation to be higher or lower on one type than on another.

Depreciation charges were calculated on the basis of replacement costs for building and machinery. The depreciation for buildings included a charge for depreciation on the farm house and averaged $128 per farm on the two quarter-section farms and $161 per farm on the larger farms. Machinery depreciation charges are not necessarily a cash outlay in each and every year, and in actual practice the amount expended in any one year varies greatly. But it must be allowed if the machinery capital is to be replaced, and if the farmer is to stay in business. For the study year, machinery and equipment valued at an average of $610 per farm were purchased on the two quarter-section farms, and an average purchase of $1,195 was made on the three and

Table 6.—Farm Expenses, According to Size and Type of Farm, West Central Manitoba, 1956

	Two quarter-sections		Three and four quarter-sections	
	Grain	Grain-livestock	Grain	Grain-livestock
	—average dollars per farm—			
Cash expenses—				
Real estate	327	315	536	521
Crop	133	109	268	275
Livestock	70	269	148	329
Machinery and equipment	734	698	1,144	1,046
Custom work	135	35	29	81
Wages paid and board	27	134	130	270
Hydro, telephone	40	51	63	72
Total cash	**1,466**	**1,611**	**2,318**	**2,594**
Depreciation—				
Buildings	260	293	370	373
Machinery	747	718	1,024	1,155
All expenses	2,473	2,622	3,712	4,122
Number of farms	21	19	24	18

four quarter-section farms. For all farms, it ranged from zero on 28 farms to over $3,000 on nine farms.

Financial Summary.—A financial summary according to size and type of farm is given in Table 7. The livestock products and meat consumed in the home are included here as receipts because it is felt they have an alternative value to the farmer, as they could have been sold if they had not been consumed. The expense figures include cash expenses and depreciation but do not include current outlays for machinery and equipment. Nor do they include any allowance for wages and board of family labor. The measure of net return is the "Return to operator and family for labor, management, and capital". Out of this return, the farmer makes his payments to unpaid family labor, payment of interest for borrowed capital or for his own capital, and a wage for his management and labor. On the two quarter-section grain farms, this net return was $2,251 per farm, varying from a low of minus $748 to a high of $4,827. The returns on two-thirds of these farms fell in the range from about

Table 7.—Financial Summary, According to Size and Type of Farm, West Central Manitoba, 1956

	Two quarter-sections		Three and four quarter-sections	
	Grain	Grain-livestock	Grain	Grain-livestock
	—average dollars per farm—			
Cash receipts	4,625	4,350	7,101	6,912
Farm products used in home	99	202	170	193
Total expenses	**2,473**	**2,622**	**3,712**	**4,122**
Return to operator and family for labor and capital	2,251	1,930	3,559	2,983
Range in return—				
Low	−748	−465	836	−680
High	4,827	4,284	7,628	7,159
Number of farms	21	19	24	18

$1,290 to $3,210. The average investment on the two quarter-section grain farms was $18,848 per farm, which at five per cent would earn, or cost, $942. Unpaid family labor of 1.9 months, if valued at going monthly wages[1] for hired labor in 1956, would receive $192. This leaves a return of $1,117 for the operator for wages and management, family living expenditures and savings. Farm family living costs were not enumerated in this survey, but data collected in earlier studies suggest that cash farm family living expenses for families on this size of farm would amount to about $1,550 per farm[2]. On the average, these farm families, on this size of farm, would have to use some of their depreciation allowances, savings, or income from non-farm sources, such as family allowances to meet all costs of farming, including their living costs.

SMALLER FARM AREA AND SMALLER NUMBER OF FARMS IN CANADA

Figures released in the D.B.S. Daily Bulletin of March 8, 1957 show that the farm-occupied area was only slightly smaller in 1956 than in 1951, but the number of farms declined almost eight per cent in the same five-year period. Increases in farm area, in the three Prairie provinces, almost outweighed the declines in other provinces, but the number of farms decreased in all provinces.

The total farm area of Canada, in June 1956, occupied 173,923,691 acres compared with 174,046,654 in 1951 and 173,566,063 acres in 1941. Saskatchewan had by far the largest farm area—62,793,979 acres— an increase of 1.8 per cent from the 61,663,195 acres recorded in the 1951 Census. In Alberta the farm area rose 3.4 per cent to 45,970,395 acres from 44,459,632 and in Manitoba 1.1 per cent to 17,931,817 acres from 17,730,393. For the three Prairie provinces combined, the farm area increased to 126,696,191 acres from 123,853,220 in 1951, an increase of 2.3 per cent.

In Ontario the farm area declined 4.8 per cent to 19,879,646 acres from 20,880,054 in 1951 and in Quebec it decreased 5.2 per cent to 15,910,128 acres from 16,786,405. Farm areas in other provinces, figures for 1951 in brackets, were as follows: British Columbia, 4,538,881 (4,702,274); New Brunswick, 2,981,449 (3,470,234); Nova Scotia, 2,775,642 (3,173,691); Prince Edward Island, 1,065,463 (1,095,304): and in Newfoundland, 71,814 acres (85,040). In the Yukon and in the Northwest Territories the farm area increased to 4,477 acres from only 432 in 1951.

The total number of farms recorded in the 1956 Census was 575,015 for Canada as a whole, a decrease of 48,076 from the 623,091 farms recorded in 1951. The number of farms in each province in 1956—and corresponding numbers in 1951 in brackets—was as follows: Ontario, 140,602 (149,920); Quebec, 122,617 (134,336); Saskatchewan, 103,391 (112,018); Alberta, 79,424 (84,315); British Columbia, 24,748 (26,406); New Brunswick, 22,116 (26,431); Nova Scotia, 21,075 (23,515); Prince Edward Island, 9,432 (10,137); and Newfoundland, 2,387 (3,626).

The average area per farm, for Canada as a whole, increased from 279 acres in 1951 to 302 acres in 1956.

It should be noted here that, for Census purposes, a farm is defined as "a holding on which agriculture operations are carried out... It must be (a) three acres or more in size or (b) from 1 to 3 acres in size with agricultural production in 1950 valued at $250 or more".

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[1] Based on data published in D.B.S. Memoranda on *Farm Wages in Canada*, January, May and August 1956.

[2] Based on farm family living costs obtained in this area in 1948 and in 1950 and brought up to date by using data published in the D.B.S. releases on *Price Index Numbers of Commodities and Services Used in Farm Family Living for Western Canada.*

CURRENT WORLD AND AGRICULTURE SITUATION[1]

The report submitted by the Council (document CL 25/9) for our consideration contains much that is encouraging relative to the current food and agricultural situation. But it also refers to certain conditions that are less than satisfactory.

On the optimistic side there is the fact that food production has increased appreciably in recent years and that the output of forest products has more than kept pace. That all areas have not shown similar progress is regrettable, but with an abundance of food and raw materials in the world it may be assumed that in one way or another they will reach the people that need them. It is encouraging that the volume of world trade in 1955 exceeded that of earlier years.

It is also of significance that the world can now spare more forage and cereals for the production of livestock and livestock products and that diets can be improved both in variety and in nutritive content.

The notes of concern relate to farm income and to accumulated surpluses of farm products. These I shall refer to in more detail. Unfortunately while our discussion refers to the current situation, it is really not current for the reason that the time lag in collecting and processing statistics on a world scale is necessarily from six months to a year, so that what we have for study refers to 1955, or at the best to the early part of 1956. These data indicate that farm prices and income in most countries declined in 1954 and in 1955. Based upon this information, document CL 25/2 prepared in June 1956 points particularly to Canada, the United Kingdom, the United States and Norway as countries in which the income of those dependent on agriculture was less favorable relative to other sectors of the population than at the peak of the postwar period.

It might be held, that such a comparison is of doubtful value. Producers of agricultural, fishery and forestry products can hardly hope under ordinary circumstances to enjoy the favorable price and income relationships that prevailed in a postwar period characterized by a combination of food and raw material shortages on the one side, and feverish reconstruction, industrial and urban growth on the other.

It is of interest and of very real significance that there is some evidence that current price relationships are again turning in favor of farmers. In Canada the index of wholesale prices of farm products which had declined for several years turned up from a low of about 196 (1935-39=100) at the beginning of this year and reached 226 in July, the last month for which we have records. It is understood that similar increases have occurred in the United States and in other western countries. If the present pace of economic development continues in these countries the relative position of the producers of raw materials, following the pattern of previous experience, is likely to improve still more. It is too early, of course, to be sure that what we are now experiencing is the commencement of a sustained period of favorable price relationships for producers of food and agricultural products but the position at present is encouraging.

I turn now to another phase of agriculture that has been the subject of a good deal of concern to FAO. I refer to surpluses. While noting that the over-all surplus position has not increased because stocks of some products including rice and dairy products have decreased, the Council nevertheless reports some increase in cotton, coarse grains, and possibly wheat, The FAO report CL 25/2 refers to increased stocks of grains in North America. These present some problems, particularly in respect to storage and transportation but it should be observed that sales this year have been substantially above those of a year ago.

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[1] Statement by the Canadian delegate, Dr. J. F. Booth, on the report presented by the FAO Council on the Current World and Agriculture Situation at the Fifth plenary meeting, third special Conference of FAO, Rome, Italy, September 17, 1956.

A delegate speaking in Council last week referred to the need to remove the underlying causes of surpluses. The advice may have been good and it was certainly of good intent, but it indicated that the speaker was not aware of the cause of surpluses in such areas as western Canada.

In some parts of the world the weather is extremely variable. That is true of the parts of North America where these surpluses of grains appear. The FAO report "State of Food and Agriculture 1956" indicates that in the 5-year period 1937-1941, which was perhaps as near to a normal period as could be selected, the production of wheat in Canada averaged 10.4 million metric tons. The average since 1951 including the forecast for 1956 has been about 14.5 million "metric" tons, an increase of 40 per cent. The United States also experienced record breaking crops in this period.

Canadian statistics[1] indicate that in the past six years including 1956 the average annual production of wheat has exceeded the annual output of the previous 10 years by 147 million bushels. This extra amount more than accounts for the 520 million bushel carry-over that Canada has this year. In other words, the surplus results from unusually large crops—five of which have been among the largest in our experience. The same conditions have caused the large output of coarse grains.

Faced with this situation—lower prices and difficulties in marketing—farmers had reduced their wheat acreage from 27 millions in 1949 to 21.5 in 1955. Some of this acreage has gone into feed grains and forage crops and some of it into flaxseed.

The point that I wish to stress is that this surplus of wheat, probably more than 90 per cent, is very largely due to a period of unusually favorable weather—a cause which cannot be removed by farmers or by governments. Despite very substantial adjustments by farmers surpluses have piled up.

It would not be reasonable to omit reference to the contribution of science and improved agricultural practices to these results. In the long-run, as I shall point out in a moment, these have added a good deal to output but they do not account for a 40 per cent increase in one 5-year period over that of the immediately preceding 10 years. Most of that increase is attributable to favorable weather.

This is significant; for, just as we can have wet years and good crops so we can have dry years and poor crops. The FAO report quoted above gives the average output of wheat for the years 1934-38 in Canada as 7.2 million metric tons or exactly one half the volume of the last five years. A return to such yields would soon dissipate our surpluses of wheat and feed grains.

I would like now to conclude with a brief reference to a development that may have more significance than any of us here today realize. I shall refer to Canada, but what I will say probably applies to the United States, Australia, New Zealand and to other of the newer countries of the western world. Canadian output of agricultural products has increased by more than 40 per cent since prewar. The productivity per worker has risen substantially more than that, perhaps by 60 per cent. Favorable weather in recent years has contributed to this but not to the same extent as in the case of wheat production. The fact is that we are experiencing a revolution in farming that is not generally recognized. The agriculture of all new countries is based upon over-emphasis upon, and extensive use of land. There is economic justification for this use in such areas, for land is cheap and plentiful while labor and capital are scarce and expensive. So just as any good economist recommends, and good industrialists practise, more of the cheapest factor of production is used. The excessive use of land under these conditions has resulted in loss of fertility, though less perhaps than some extremists might contend. Records indicate that a similar development occurred centuries ago in Europe and elsewhere.

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[1] Supplement to *Handbook of Agricultural Statistics, Field Crops,* November 1955. Dominion Bureau of Statistics, November 1955. Data for 1956 are based upon the DBS September estimate of production.

But with time there comes a change. As these newer countries have grown in years they have added population (labor) and capital. Today land is a much less important factor relatively in Canada than it used to be. Capital in the form of machinery, fertilizers, improved seed, better quality livestock has become much more important. Science and experience have added their quota, with the result that better husbandry is being practised, fertility is being restored and yields and output increased. The results in these respects are not sensational but they are significant. Statistical records for the older parts of Canada indicate substantial yield increases in such crops as wheat, corn, and potatoes, compared with the yield of 60 to 70 years ago. These yields are not due to good weather. In other words, what is happening may be similar to the changes that occurred in Britain, the Netherlands, Denmark and elsewhere in much earlier years. In short, farming methods are improving and this is contributing to the increase in output to which FAO reports refer. Developments of this kind that are now taking place and which will some day take place in underdeveloped countries give us a basis for being hopeful about food supplies and the ability of the world to provide an adequate diet for its people in the years ahead. The work of FAO is contributing substantially to that result.

NOTES ON MARKETING MARGINS, AND FARM SHARE OF RETAIL COST, 1949-56[1]

ROGER PERREAULT

In 1956, retail food prices of farm products of Canadian origin increased by slightly less than two per cent while prices at the farm level remained fairly stable. As a result, the estimated farm share of retail cost[2] declined from 46 to 45 per cent. This share has gradually declined from 51 per cent in 1949 to the 1956 level of 45 per cent.

Indexes of retail food prices, farm prices, marketing margins and farm share of retail cost in the 1949-56 period were computed for 14 selected agricultural commodities which represent roughly 75 per cent of the retail cost of Canadian farm foods domestically consumed (Table 1). The index of marketing margins shows the year-to-year variations in the cost of marketing fixed quantities of these commodities. The index of farm share of retail cost shows the year-to-year variations in the portion of retail cost accruing to farmers from urban family food expenditures on fixed quantities of these commodities.

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[1] A similar report by R. C. Gilstorf and G. E. Woollam covering the period 1949-55 was published in *The Economic Annalist*, June 1956. pp. 70-71.

[2] In this article, retail cost refers to the average quantities of farm produced food products purchased for consumption at home by a representative urban family. It was calculated from urban family food expenditure data collected in 1953 by the Dominion Bureau of Statistics.

Table 1.—Indexes of Retail Food Prices, Marketing Margins and Farm Shares, 14 Selected Agricultural Commodities (1949 = 100), Canada 1949-56

Year	Retail food prices	Farm prices	Marketing margins	Farm share of retail cost
1950	101.5	101.0	103.2	98.9
1951	115.6	115.4	113.2	100.4
1952	118.2	118.6	127.1	94.6
1953	113.1	102.3	126.1	92.6
1954	110.3	97.2	126.2	90.9
1955	110.8	97.2	124.5	91.4
1956	112.1	96.8	129.7	88.0

Table 2.—Average Annual Marketing Margins, 14 Selected Commodities, Canada, 1949-56

Commodity	Unit	1949	1950	1951	1952	1953	1954	1955	1956[a]
					—cents per unit—				
Wheat flour[b]	lb.	3.7	4.0	4.3	4.5	4.5	5.0	4.6	4.9
White bread[b]	lb.	7.7	8.1	9.4	9.9	10.0	10.7	10.7	11.5
Beef, blue brand	lb.	18.4	20.1	21.6	29.0	26.7	24.1	24.4	25.3
Pork[c]	lb.	21.2	21.5	24.1	24.1	26.9	30.2	27.4	27.5
Chicken[c]	lb.	25.7	23.5	27.8	26.2	29.5	30.0	23.1	26.2
Eggs, A large	doz.	11.2	12.4	14.1	15.2	15.8	15.1	15.1	16.2
Fluid milk	qt.	7.9	8.2	9.1	9.8	9.5	9.9	9.9	10.1
Creamery butter	lb.	15.3	15.1	14.2	15.5	14.8	14.4	14.6	14.5
Cheese, plain process	½ lb. pkg.	19.0	19.7	21.0	24.8	24.1	23.4	24.0	21.5
Potatoes	10 lb.	18.2	18.1	17.8	26.4	22.3	20.5	27.5[d]	29.4
Canned peaches	15 oz. tin	15.4	15.5	17.1	16.9	15.9	15.9	16.7	16.3
Canned tomatoes	28 oz. tin	16.1	14.1	19.0	23.8	19.2	16.8	20.8	22.3
Canned corn	20 oz. tin	16.2	14.8	15.8	16.7	15.2	14.8	15.8	15.5
Canned peas	20 oz. tin	14.6	14.2	15.2	16.6	16.9	16.8	16.3	18.0

[a] Preliminary.

[b] Based on domestic price of wheat, in store Fort William-Port Arthur less marketing charges from farm to Fort William-Port Arthur.

[c] Method used subject to revision.

[d] Revised.

Table 3.—Farm Share of the Retail Cost as a Percentage of the Retail Price, 14 Selected Commodities, Canada, 1949-56

Commodity	1949	1950	1951	1952	1953	1954	1955	1956[a]
				—per cent—				
Wheat flour[b]	49	46	42	39	41	35	38	37
White bread[b]	23	21	18	16	17	14	15	14
Beef, blue brand	64	67	71	62	57	58	59	57
Pork[c]	62	61	61	55	56	53	50	51
Chicken[c]	56	58	58	56	54	55	58	51
Eggs, A large	82	78	80	74	77	73	76	74
Fluid milk	56	55	54	54	54	53	53	52
Creamery butter	76	75	79	77	77	78	77	77
Cheese, plain process	35	32	35	27	27	28	27	37
Potatoes	48	45	49	61	43	45	41[d]	41
Canned peaches	26	23	21	22	21	22	21	24
Canned tomatoes	20	21	18	17	21	22	21	18
Canned corn	15	15	14	15	18	17	17	17
Canned peas	17	18	19	19	20	20	21	20

[a] Preliminary.

[b] Based on domestic prices of wheat, in store Fort William-Port Arthur less marketing charges from farm to Fort William-Port Arthur.

[c] Method used subject to revision.

[d] Revised.

Tables 2 and 3 show the average annual marketing margins and the farm share of the retail cost for each of the 14 individual commodities. Owing to inadequacies in the data used in the calculations, these figures do not necessarily show the actual marketing cost or farm share of any given commodity in any one year but do reflect changes from year to year.

PUBLICATIONS OF THE ECONOMICS DIVISION

Federal Agricultural Assistance Programs, Canada, 1945-56. Cameron, Marjorie R., Ottawa, February 1957. pp. iii + 111.

A reference paper which includes a chronological description of the assistance programs of the federal Department of Agriculture. It supplements and brings up to date the review of assistance programs contained in *Federal Agricultural Assistance Programs, Canada, 1900-1951.*

Exports, Imports and Domestic Disappearance of Agricultural Products as a Percentage of Production, Canada, 1935 to 1955. Berthiaume, Rachel. In co-operation with Agriculture Division, Dominion Bureau of Statistics. Ottawa, April 1957. pp. 8.

A statistical report which revises and brings up to date a study published in 1944 by the Dominion Bureau of Statistics, and dealing with data for the 1935-1942 period.

Canada: Trade in Agricultural Products, 1955. Ottawa, December 1956. pp. 12.

A statistical report containing four tables on total exports and imports of agricultural products; total trade, trade in agricultural products and exports of wheat and flour; balance of trade in agricultural products—summary of value; and balance of trade in agricultural products—quantity and value of principal commodities.

Canadian Agriculture in 1956, A Chronology of Federal Policies. Dunbabin, Margaret I. Ottawa. February 1957. pp. 46.

The fifth in a series of annual publications recording changes in federal policies affecting Canadian agriculture and important events connected with these policies.

Canada and the United States Tariffs on Selected Agricultural Products. Compiled by Margaret I. Dunbabin. Ottawa. March 1957. pp. 18.

A comparative tabulation of tariff rates on imports of major agricultural products into Canada and the United States.

List of Published Material by Members of the Economics Division, 1930-1956. Ottawa, February 1957. pp. 64.

A consolidation and extension of a similar bibliography published in June 1953 and of its supplement published in August 1955. It contains a list of material written by members of the Economics Division and published either by the Division or by other agencies.

OTHER PUBLICATION

Nova Scotia Farm Management Reference Manual. Grant, Walter V. Farm Management Division, Extension Service Branch, Department of Agriculture and Marketing, Halifax, Nova Scotia. September 1956. pp. 80.

A manual *"prepared to assist Nova Scotia farm families to make wise management decisions and plan efficient farm business units"*. It is organized into seven different parts, the first one outlining the job of management on a family farm and introducing the farm budget as a decision-making tool. The remainder of the manual is concerned with information on crop, livestock and poultry production, and on buildings and equipment, farm credit, prices and insurance.

THE ECONOMIC ANNALIST

A BIMONTHLY REVIEW OF AGRICULTURAL BUSINESS

MARKETING SERVICE, ECONOMICS DIVISION

J. F. BOOTH, Chief

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ANNUAL AND MONTHLY INDEX NUMBERS

Wholesale Prices, Farm Prices and Living Cost Indexes

Year and Month	General Wholesale Price	Wholesale Prices of Canadian Farm Products[a]			Farm Prices of Agricultural Products[b]	Prices of Commodities and Services used by Farmers		Consumer Price		Industrial Production
		Total[b]	Field[b]	Animal		Composite[c]	Equipment and Materials[d]	Total	Food	
		1935–39=100						1949=100		1935–39=100
1913..........	83·4	....	....	....	....	....	85·4	49·2	44·4	....
1914..........	85·4	....	....	....	....	85·3	90·2	49·6	46·0	....
1915..........	91·8	....	....	....	....	91·6	96·9	50·3	46·8	....
1916..........	109·8	....	....	....	....	100·5	101·7	54·2	51·8	....
1917..........	148·9	....	....	....	....	140·5	140·7	63·7	66·9	....
1918..........	166·0	....	....	....	....	160·2	164·1	72·0	76·9	....
1919..........	174·7	....	....	....	....	167·9	169·1	78·8	82·2	....
1920..........	203·2	....	....	....	....	186·5	190·1	90·5	94·4	....
1921..........	143·4	....	....	....	....	152·5	147·4	80·9	72·5	....
1922..........	126·8	....	....	....	....	134·1	124·6	74·9	61·5	....
1923..........	127·7	....	....	....	....	130·6	118·3	75·2	61·9	....
1924..........	129·5	....	....	....	....	131·9	122·3	74·0	60·7	....
1925..........	133·8	....	....	....	....	131·8	123·2	74·6	63·4	....
1926..........	130·3	144·4	158·5	130·2	....	130·6	119·9	75·9	66·6	....
1927..........	127·3	138·6	149·4	127·8	....	131·2	119·9	74·6	65·3	....
1928..........	125·6	136·3	134·3	138·2	....	129·3	118·3	75·0	65·6	....
1929..........	124·6	140·8	137·2	144·4	....	127·9	117·6	75·8	67·1	....
1930..........	112·9	119·5	105·8	133·3	....	117·0	105·6	75·3	65·6	....
1931..........	94·0	78·9	65·0	92·7	....	100·9	92·2	67·9	51·4	....
1932..........	86·9	65·5	60·4	70·5	....	93·3	89·3	61·7	42·8	....
1933..........	87·4	69·3	69·3	69·2	....	89·8	88·8	58·8	42·3	....
1934..........	93·4	83·5	80·5	86·5	....	95·5	96·8	59·6	46·2	....
1935..........	94·4	89·2	84·4	94·1	88·0	95·4	95·6	59·9	47·2	85·6
1936..........	96·8	97·9	102·2	93·7	96·9	98·1	98·7	61·1	48·8	94·6
1937..........	107·7	117·4	128·9	106·0	119·7	105·3	108·4	63·0	51·4	108·0
1938..........	102·0	102·9	100·9	104·8	105·0	101·7	101·2	63·7	51·7	102·0
1939..........	99·2	92·6	83·7	101·5	91·8	99·3	95·7	63·2	50·2	109·7
1940..........	108·0	96·1	85·4	106·7	96·8	106·8	101·8	65·7	52·6	131·4
1941..........	116·4	106·6	88·9	124·4	110·2	116·1	107·8	69·6	57·9	164·8
1942..........	123·0	127·1	109·7	144·6	133·1	131·6	119·2	72·9	63·4	195·7
1943..........	127·9	145·4	129·0	161·8	157·8	143·4	122·4	74·2	65·2	208·5
1944..........	130·6	155·3	144·5	166·1	172·4	148·0	126·0	74·6	65·5	212·4
1945..........	132·1	166·4	162·5	170·2	185·7	152·1	125·9	75·0	66·3	187·2
1946..........	138·9	179·5	177·9	181·2	204·1	157·0	128·0	77·5	70·0	171·9
1947..........	163·3	192·2	184·1	200·2	215·8	170·4	139·5	84·8	79·5	187·8
1948..........	193·4	232·1	200·6	263·7	255·8	197·6	173·1	97·0	97·5	196·3
1949..........	198·3	228·7	191·9	265·4	255·4	204·1	180·3	100·0	100·0	199·6
1950..........	211·2	236·7	191·9	281·4	260·8	210·4	189·9	102·9	102·6	211·5
1951..........	240·2	268·6	200·4	336·9	296·8	230·0	206·0	113·7	117·0	226·5
1952..........	226·0	250·2	223·0	277·5	274·4	243·1	215·8	116·5	116·8	233·0
1953..........	220·7	221·6	179·4	263·8	250·4	234·8	207·4	115·5	112·6	248·4
1954..........	217·0	213·6	170·9	256·2	234·8	237·2	203·3	116·2	112·2	244·6
1955..........	218·9	209·7	174·4	245·1	232·7	238·3	204·6	116·4	112·1	265·8
1956..........	225·6	210·2	173·5	246·9	231·2	247·6	208·8	118·1	113·4	284.4
1956										
Oct..........	227·1	208·0	159·9	256·0	227·5	....	....	119·8	117·4	288·7
Nov..........	226·6	209·4	163·1	255·7	225·3	....	....	120·3	117·9	290·1
Dec..........	228·1	210·3	164·4	256·2	225·1	....	....	120·4	117·5	290·1
1957										
Jan..........	229·4	211·6	166·0	257·2	227·2	247·0	212·3	120.3	117.1	291·1
Feb..........	228·4	210·1	161·3	259·0	227·6	....	....	120·5	117·2	292·0
Mar..........	228·4	206·8	160·2	253·4	224·5	....	....	120·5	116·4	290·9
April........	228·4	207·5	159·9	255·1	224.2	258.6	212.0	120·9	116·7	287.8
May..........	228.0	206.4	157.5	255.3	224.0	....	....	121.1	116.7	286.9
June..........	228.0	208.4	154.6	262.2	226.3	....	....	121.6	117.7	284.1
July..........	228.2	....	....	....	....	....	....	....	....	....
August........	....	....	....	....	....	....	....	....	....	....
Sept..........	....	....	....	....	....	....	....	....	....	....

Source:—Dominion Bureau of Statistics, Ottawa.

(a) Prices at terminal markets.

(b) Indexes August 1955—July 1956 include final barley and oats payments announced November 15 and 29, 1956.

(c) Exclusive of living costs. Includes farm implements, building materials, gasoline, oil, greases, feed, fertilizer, binder twine, seed, hardware, tax rates, interest rates and farm wage rates.

(d) Differs from composite index by exclusion of tax rates, interest rates, and farm wage rates.

THE ECONOMIC SITUATION

Gross National Product.—Canada's total output of goods and services in the first quarter of 1957 was at about the same level as for the fourth quarter of 1956. The 0.9 per cent increase in non-farm gross national product was largely attributable to price increases. The relative stability in the volume of non-farm output follows successive quarter-to-quarter increases since mid-1954.

The quarterly estimates of total Gross National Product—farm and non-farm—include an arbitrary figure for farm output. This figure is based on the assumption of a normal crop in 1957, compared with the large crop in 1956. So, the total Gross National Product for the first quarter of 1957 is somewhat lower than in the preceding quarter, allowance made for seasonal factors.

The leveling-off in the Gross National Product is the net result of some divergent movements among its major components. The major aggregates of labor income and consumer expenditure both increased by 1.5 per cent. Exports and imports of goods and services both increased by 1.0 per cent.

Consumer Prices.—Canada's consumer price index (1949=100) rose from 121.1 to a new high of 121.6 between May and June 1957, largely as a result of higher food prices. Most of the May-June advance in the food index from 116.7 to 117.7 stemmed from higher prices for all meats, notably pork, but higher prices for fresh fruits, some fresh vegetables and mik also contributed to the rise. Declines in food prices were recorded for some canned and fresh vegetables and coffee.

Farm Cash Income.—Canadian farmers received a record total of $598.5 million from the sale of farm products and from participation payments on previous years' grain crops, in the first three months of 1957. The estimate exceeds the previous all-time high of $555.7 million for the period, established in 1952, and is nearly 13 per cent above the $530.3 million realized in 1956.

Cash income, for the first three months of the year, was higher in 1957 than in 1956 for all provinces except Nova Scotia and Quebec, the increases ranging from six per cent in New Brunswick to about 27 per cent in Saskatchewan.

The more important contributors to the gain in the total cash income were larger wheat participation payments and increased returns from the sale of wheat, flaxseed, tobacco and hogs. Supplementary payments made under the provisions of the Prairie Farm Assistance Act to farmers in western Canada amounted to $1.5 million for the first three months of 1957 compared with $2.9 million for the same period of 1956.

Farm Wages.—Farm wages averaged higher at mid-May 1957 than at the same date last year. National average annual wages, with board provided, rose to $1,170 from $1,110 and wages without board to $1,640 from $1,520. Monthly wages with board averaged $118 compared with $108 at mid-May 1956 and monthly wages without board $155 compared with $142.

In eastern Canada annual wages with board provided rose to an average of $1,090 from $1,045 and in western Canada they rose to $1,270 from $1,200. Without board, the eastern average rose to $1,575 from $1,465 and the western average to $1,725 from $1,590.

The daily rates for all Canada rose from $5.30 to $5.00, with board, and from $6.40 to $6.80 without board.

Fluid Milk.—Sales of fluid milk and cream, the latter expressed in terms of milk, totaled 484.1 million pounds in April, a gain of six per cent over April 1956. January-April sales were four per cent larger, totaling 1,929.3 million pounds. All provinces, except Prince Edward Island, reported larger sales.

THE MEASURING OF SAWLOGS FROM CANADIAN FARM WOODLOTS

J. M. FITZPATRICK

Farm woodlots are an important source of sawlogs in Canada. One-third of all forest lands under private ownership are on farms. These woodlots cover over 13 per cent of the total farm area and in 1955 they supplied farmers with an estimated cash income of 83 million dollars.

To maximize returns from woodlots, farmers must know the basis on which sound sawlogs are sold for lumber. The purpose of this article is to acquaint farmers and other readers with this basis; namely, the method of measuring sawlogs through the use of provincial log rule tables. The actual payment to a farmer for sawlogs depends on the number of board feet of lumber, as estimated by the log rule chosen.

The use of a log rule in the measurement of sawlogs is required by law in all provinces, but buyers and sellers of sawlogs are free to specify in their contracts the unit of measure and the log rule of their choice. Rules now in existence are generally based on the milling practices which prevailed at the time that they were constructed. As conditions change, the woodlot manager needs to review the log rules presently in use and make certain that the one he uses gives a fair measure of the sawlogs he has for sale.

In the early days of the lumber industry, the millman would usually cut the raw materials himself. With the passing of time, others did this work for him but as his interests were mainly in the finished product, namely board feet, this system of exchange soon became entrenched and is still in use today.

Fifty years ago, large logs were mainly used for sawlogs and scales were designed for the measurement of these logs at the expense of smaller ones. Today smaller diameter logs far outnumber larger ones. Log rules constructed in recent years have taken this into account.

There are four methods of constructing log rule scales: (1) by mathematical formulae; (2) by diagram; (3) by tallying the actual sawed contents of logs; and (4) by conversion of the cubic contents of the logs into board feet. For sawlogs, methods (1) and (2) are the most generally used while (3) and (4) are used as a check on methods (1) and (2).

The Provincial Log Rules.—Each of the provincial log rules were constructed by use of one or more of the above methods. Log rules now in common use are as follows:

Newfoundland	Newfoundland log rule
Nova Scotia	New Brunswick log rule
New Brunswick	New Brunswick log rule
Quebec	Roy log rule, Old Quebec rule
Ontario	Ontario log rule, Doyle log rule
Manitoba	International log rule
Saskatchewan	International log rule
Alberta	Scribner log rule
British Columbia	British Columbia log rule
The Dominion Forest Service	Scribner Decimal C log rule

Newfoundland.—In all provinces except Newfoundland, all sawlogs cut from Crown lands must be measured by licensed scalers, as authorized by provincial Ministers of Lands and Forests or by the Dominion Forest Service. The increasing importance of correct scaling, has focused attention on the use of the Newfoundland log rule (Table 1). In the opinion of the Newfoundland Royal Commission on Forestry, a revision of the official Newfoundland log scale is long overdue. The number of board feet shown by this log rule when used for small diameter logs is as much as 50 per cent higher than if measured

Table 1.—Yield of Lumber for Specified Log Sizes, as Estimated by the Newfoundland Log Table

Diameter of small end inside bark	Length of log in feet 8	10	12	14	16
inches	—contents in board feet—				
6	12	15	18	21	24
8	21	26	32	37	42
10	33	41	50	58	66
12	48	60	72	84	96
14	65	81	98	114	130
16	85	106	128	149	170

by one of the newer log rules. The result is that generally this log rule is bypassed by private buyers for one of the other log rules. If a log rule such as the Doyle scale is chosen, the farmer, instead of being credited with more board feet than the sawlogs warrant, may be credited with less than half the true value.

Nova Scotia and New Brunswick.—The New Brunswick Log Rule (Table 2) is the official log rule of both Nova Scotia and New Brunswick. It is a "diagram" scale based on the diameter of logs at the small end. Under this method, the volume of a 7-inch log was determined by drawing a 7 inch circle and finding out how many one inch boards it would contain, allowing one-quarter inch saw kerf. The New Brunswick Log Scale gives a slight over-run in small diameters but is considered as one of the better log scales now in use.

Quebec.—Within Quebec, two systems of scaling logs are commonly used; namely, the Old Quebec Log Rule and the Roy Log Rule. The latter is gaining ground. It is required that all logs cut on Crown lands or on lands where the Crown may have dues to collect for the purposes of administration be scaled by licensed scalers, and according to the Roy Log Rule, which was substituted May 1, 1946 for the Old Quebec Rule.

In general, the Roy Log Rule gives about 15 per cent more board feet than the Quebec Log Rule (Table 3). If a buyer specified the old Quebec log rule in his contract, then the seller had the right to ask more for his logs. Some buyers stick to the Old Quebec log rule as they can bid higher per thousand board feet than their competitors who are buying according to the Roy system.

The Old Quebec log rule was based on diagrams and constructed around 1880, when only large sawlogs were cut. This table gave satisfactory results until the small sawlogs outnumbered the large ones, as is the case now. In contrast, the Roy log rule was constructed by mathematical methods. It is more accurate. Increases from dimensions class to dimensions class are more regular than with the Old Quebec rule. It is one of the best log rules in use in Canada or the United States.

Table 2.—Yield of Lumber for Specified Log Sizes, as Estimated by the New Brunswick Log Rule

Diameter inside bark	Length of log in feet 8	10	12	14	16
inches	—contents in board feet—				
6	10	12	15	18	20
8	20	25	30	35	40
10	32	40	48	56	64
12	48	60	72	84	96
14	65	82	98	114	130
16	85	107	128	149	170

Table 3.—Yield of Lumber for Specified Log Sizes, as Estimated by Log Rules Commonly Used in Quebec

Diameter inside bark	Old Quebec Log Rule					Roy Log Rule				
	Length of log in feet					Length of log in feet				
	8	10	12	14	16	8	10	12	14	16
inches	—contents in board feet—									
6	8	10	12	14	16	10	13	15	18	20
8	16	20	24	28	32	20	25	29	34	39
10	29	37	44	51	59	32	41	49	57	65
12	40	50	60	70	80	48	61	73	85	97
14	60	75	90	105	120	68	85	101	118	135
16	80	100	120	140	160	90	113	135	158	180

Ontario.—Two log rule systems entitled the Doyle and Ontario Log Rule are now in common use in Ontario (Table 4). Until 1952 just the Doyle log rule was considered the official log rule for the province. This log rule is probably the least accurate log rule in use today. The Doyle scale shows great inconsistency with the amount that can actually be sawn out.

The prevalence of use of the Doyle method has been due mainly to the simplicity of its application as a rule of thumb. This rule reads, "deduct four inches from the diameter of the log as an allowance for slab. Square one quarter of the remainder and multiply the result by the length of the log in feet". The result is the contents of the log in board feet. Custom or habit of using this system is fixed and decidedly favors the buyer of small logs. The users of the Doyle log rule adjust their prices to try to compensate for the deviations, but because the error differs with every size of log it is practically impossible to determine the actual loss without remeasuring the logs with one of the better log rules. In the early days of large and cheap virgin timber this rule was fairly satisfactory but for smaller timber below 28 inches in diameter it is entirely unsatisfactory.

The Ontario log rule was developed under Ontario conditions after a series of extensive investigations by the Forest Products Laboratories of Canada. Logs were identified according to number, diameter and length. The number and depths of cuts were noted and at the sorting table the lumber was tallied by grade and size and segregated by log number. The volume of lumber from each size of log was determined as well as the relationship between log diameter and lumber production. This information was used to develop a

Table 4.—Yield of Lumber for Specified Log Sizes, as Estimated by the Log Rules Commonly Used in Ontario

Diameter inside bark	Doyle Log Rule					Ontario Log Rule				
	Length of log in feet					Length of log in feet				
	8	10	12	14	16	8	10	12	14	16
inches	—contents in board feet—									
6	2	2	3	3	4	10	13	15	18	21
8	8	10	12	14	16	17	21	26	30	34
10	18	22	27	31	36	29	36	43	50	57
12	32	40	48	56	64	43	54	65	76	86
14	50	62	75	87	100	61	76	91	106	121
16	72	90	108	126	144	81	101	122	142	162

Table 5.—Yield of Lumber for Specified Log Sizes, as Estimated by the International Log Rule—(using ¼ inch kerf)

Diameter of small end inside bark	Length of log in feet				
	8	10	12	14	16
inches	—contents in board feet—				
6	10	10	15	15	20
8	15	20	25	35	40
10	30	35	45	55	65
12	45	55	70	85	95
14	65	80	100	115	135
16	85	110	130	155	180

mathematical formula $(.55D^2-1.2)\frac{L}{12}$ where D is the diameter and L is the length and was used as the basis for determining board feet. This is the newest and one of the best log rules in Canada. For Ontario conditions it is probably the best.

Manitoba and Saskatchewan.—Manitoba and Saskatchewan use the International log rule (Table 5) for the measurement of sawlogs. This rule is the result of investigations by J. F. Clark, Forester of the Department of Lands and Forests, Ontario. The rule is based on the following:

(1) The product of logs are one inch thick;
(2) The saw cutting is on a specific kerf (one-quarter inch);
(3) The minimum board must be three inches in width and containing not less than 2 board feet;
(4) An allowance is made for a TAPER OF ONE HALF INCH for each four foot length.

This scale is recommended as a standard for scientific measurement of volume and growth in terms of board feet for regions where lumber is manufactured by saw mills using circular saws cutting a ¼ inch kerf.

Alberta.—In 1930 the Scribner log rule (Table 6) was adopted by Alberta after assuming control of her natural resources. In addition to the Scribner log rule, the International log rule is used. The latter would likely have been adopted had it not been decided to set up rules particularly adapted to Alberta timber. Since the conception of the Scribner rule, a modified rule known as the Scribner Decimal "C" log rule has been developed to enable a more representative measure of logs below 12 inches in diameter.

Table 6.—Yield of Lumber from Logs of Specified Sizes, as Estimated by the Scribner and Scribner Decimal "C" Log Rules

Diameter of small end inside bark	Scribner Log Rule					Scribner Decimal "C"				
	Length of log in feet					Length of log in feet				
	8	10	12	14	16	8	10	12	14	16
inches	—contents in board feet—									
6	9	11	14	16	18	5	10	10	10	20
8	16	18	23	28	32	10	20	20	20	30
10	27	31	38	45	54	30	30	30	40	60
12	39	49	59	69	79	40	50	60	70	80
14	58	72	86	100	114	60	70	90	100	110
16	79	99	119	139	159	80	100	120	140	160

Table 7.—Yield of Lumber for Specified Log Sizes, as Estimated by the British Columbia Log Rule

Diameter of small end inside bark	Length of log in feet				
	10	12	14	16	18
inches	—contents in board feet—				
10	34	41	48	55	62
12	52	63	73	84	94
14	74	89	104	119	134
16	100	120	140	160	180
18	130	156	181	207	223
20	168	195	228	261	293

The Scribner Decimal "C" log rule has wide acceptance and use. Because of its reasonable consistency in over-run, it comes very close to fulfilling the demand for a universal commercial log rule.

British Columbia.—The British Columbia log rule was based on sound scientific principles (Table 7), as a direct result of thorough investigation. The British Columbia Scale was constructed by a combination of the diagram and mathematical methods and was adopted in 1909 as a statute rule. For simplicity in mathematical deduction, the formula can be written as $\frac{.785\ (D-1\frac{1}{2})^2 \times 8L}{11 \times 12}$ where D is the diameter in inches taken at the small end inside the bark and L is the length of the log in feet.

The above formula applies to all sawlogs not over 40 feet in length. For logs over 40 feet, half the log is measured directly from the British Columbia log rule (Table 7) and the second half is computed by adding one inch to the diameter of the small end for each additional 10 feet in length over 40 feet and then computing from the table.

Expansion of Cubic Foot Rules.—Any board foot scale attempts to show only the amount of 1-inch boards which can be sawn from a log of given dimensions by the use of saws of a certain gauge. If material other than 1-inch boards are sawn or saws of a different gauge are used, the amount of material obtained will vary from that shown by the scale. Cubic measurements give a more accurate measure of the log to be used for lumber but requires three measure-

Table 8.—A Comparison of the Amount of Lumber from Sawlogs, Using Different Measurements

	Softwoods		Hardwoods	
Log diameter (inches)	6.3	16.4	12.3	16.7
Log length (feet)	12.3	16.3	12.2	16.3
	—contents in board feet—			
ACTUAL LUMBER RECOVERED BY MEASUREMENT AT SAWMILLS	17	172	66	172
BOARD FOOT MEASURE AS SHOWN BY—				
Doyle rule	3	144	48	156
Roy	15	180	73	180
New Brunswick	15	170	72	170
International	15	180	70	205

Table 9.—Comparaison of Log Rules—Values for 16-foot logs

Diam. of small end[1]	Board foot relationship to the Ontario Log Rule								
	Ontario	Nfld.	New Brunswick	Old Quebec	Roy	Doyle	Int'l $\frac{1}{4}''$ kerf	Scribner	British Columbia
inches	F.B.M.				—percentage—				
6	17	141	118	94	118	24	118	106	88
8	34	124	118	94	115	47	118	94	94
10	57	116	112	103	114	63	114	95	96
12	86	112	112	93	113	74	110	92	98
14	121	107	107	99	112	83	112	94	98
16	162	105	105	99	111	89	111	98	99

[1] Measurement taken inside the bark.

ments: (a) the top diameter; (b) the butt diameter; and, (c) the length. Under board foot measures only one diameter measurement and the length are required.

The Samalian formula is usually used for this measure and is as follows:

(1) Obtain the areas of each end of the log in square feet $\frac{(R^2)}{144}$

(2) Add the square feet obtained from the top and butt end and divide by 2.

(3) Multiply the result by the length and so obtain the cubic contents.

This system is seldom used for sawlog measurements because of the additional operation required and a reticence on the part of industry to depart from a familiar system. It is probable that if and when the cubic volume scale is in common use deductions for defects, slab and saw kerf, will have to be shown as a gross figure.

Comparison of Log Tables With The Actual Volume of Lumber Sawn.—In 1948 and 1949, the actual volume of lumber sawn from various sizes of straight sound logs for both softwood and hardwood were measured at 50 sawmills in New Brunswick, Quebec and Ontario by the Forestry Branch of the Northern Affairs and National Resources Department. Tables were compiled based on the volume of logs of various sizes sawn. The calculations required were not in any way connected with log rules. The actual lumber recovered as measured by the Forestry Branch and as given by four provincial log rules now in use are shown in Table 8. The sawlog sizes, in Table 8, were the average sizes delivered to sawmills in eastern Canada. It was found that 90 per cent of the softwood logs and 62 per cent of all hardwood logs measured were 12 inches or less in diameter. It is therefore important that log rules which measure accurately the number of board feet in smaller diameter logs be used. For eastern Canada, the Ontario log rule promises to be one of the best.

Since the Ontario log rule is the latest scientific log rule to be developed, it is of interest to use this rule as a base and compare other rules with it. For this comparison, a 16-foot log was used as a standard length. As shown (Table 9) the board foot measurement obtained varied considerably, depending on the log rule selected. For this reason, a farmer must know the advantages and disavantages of the various systems and choose the one which will most accurately measure the logs he has for sale. The chosen log rule should then be written into the contract along with other pertinent information such as the price to be paid per thousand board feet of lumber. Only then will the seller have assurance that he will receive a fair return for the logs he has for sale.

TRENDS IN FOOD EXPENDITURE PATTERNS IN CANADA[1]

L. E. Drayton and G. J. Dobson

Total expenditure on food in Canada increased from $791 million in 1935 to $4,326 million in 1956 or more than fivefold. (Table 1). This increase was similar to that in disposable income during the same period; there was thus little change in the proportion of disposable income that was spent on food. Although this proportion declined from 23.1 per cent in 1954 to 21.6 per cent in 1956 this may not reflect any long run trend to spend a smaller proportion of disposable income on food. Indeed, because of difficulties in collecting very precise data of this type, little significance can be attached to small year-to-year fluctuations and time alone can tell whether the somewhat lower share of disposable income spent on food in 1956 is part of a persistent downward trend.

Table. 1.—Food Expenditures: Total Per Capita and as a Percentage of Disposal Income in Canada Selected Years 1935 to 1956

Year	Total	Per capita in terms of		Percentage of disposable income
		Current Dollars	1949 dollars	
	million dollars			per cent
1935	791	72.9	156.5	24.0
1940	1,055	92.7	178.3	21.9
1945	1,885	156.1	238.4	22.4
1950	3,039	221.6	216.0	24.0
1951	3,488	249.0	212.8	23.8
1952	3,669	254.3	217.7	23.1
1953	3,747	252.4	224.2	22.4
1954	3.881	253.9	226.3	23.1
1955	4,065	259.0	231.0	22.3
1956[a]	4,326	269.0	237.2	21.6

[a] Preliminary, subject to revision.

The change in food expenditure per person as expressed in 1949 dollars, however, is quite significant. The increase from $156 in 1935 to $237 in 1956 represents a change in the quantity and quality of food eaten by the average person. These data are derived by adjusting the per capita expenditure on food at current prices for changes in the retail price level. The food expenditure portion of the Consumer Price Index, which reflects changes in the retail value of a fixed basket of food, was used to make this adjustment.

With changes in the prices for food thus removed, the higher expenditure for food must be the result of purchases of greater quantities, improved quality or more services with the food. Some of the changes which occurred in the quantities of specific foods used are described in another article.[2] These changes in quantities of food eaten were associated with increases in the use of processed and prepared foods and in consumption of meals at restaurants. The food expenditure given in Table 1 includes the estimated value of food served in restaurants; the latter increased almost tenfold since 1935, i.e. from about 7 per cent of total food expenditures in 1935 to about 14 per cent in 1956.

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[1] See previous article by MacDonald, B.A. on *Trends in Food Expenditure Patterns in Canada.* The Economic Annalist, August, 1954.

[2] See Choquette, R., *Trends in the Consumption of Certain Groups of Foods in Canada*, pp. 84-87 of this issue of *The Economic Annalist.*

From the foregoing data it may be inferred that the average Canadian consumer has substantially raised his standard of food consumption since 1935 without increasing the proportion of his disposable income which he spends on food. This means that 20 to 24 per cent of the average consumer's income was able to buy more and better food in 1956 than in earlier years.

A further indication of the combined effect of changing wage and price levels on ability to buy food may be shown in the quantities of food which can be bought with one hour's industrial wages. (Table 2). The selected food items constitute a representative group of foods. Consequently, they probably reflect, with reasonable accuracy, the trend in the ability of industrial workers to buy food.

Table 2.—Quantities of Selected Foods Purchasable with One Hour's Industrial Wages 1939 and 1944-56

Year	Bread	Flour	Milk	Butter	Cheese	Round steak	Blade roast
	24 oz. loaves	lbs.	qts.	lbs.	lbs.	lbs.	lbs.
1939	5.2	13.8	4.4	1.7	1.8	2.1	2.9
1944	7.1	17.2	6.9	1.8	1.7	1.9	2.6
1945	7.0	17.3	6.7	1.8	1.7	1.8	2.7
1946	7.1	17.5	5.7	1.6	1.6	1.7	2.7
1947	7.4	17.9	5.3	1.5	1.7	1.8	2.8
1948	6.8	15.0	5.1	1.3	1.6	1.6	2.2
1949	6.7	14.1	5.5	1.5	1.7	1.5	2.0
1950	6.7	14.2	5.7	1.7	1.8	1.3	1.8
1951	6.8	15.8	6.0	1.7	1.8	1.2	1.6
1952	7.3	17.4	6.1	2.0	1.9	1.4	2.0
1953	7.5	17.9	6.4	2.1	2.1	1.8	2.6
1954	7.5	18.3	6.7	2.2	2.2	2.0	2.9
1955	7.7	19.5	6.8	2.2	2.2	2.0	2.9
1956	7.6	19.9	7.1	2.4	2.2	2.0	3.1

Year	Pork loins	Bacon	Peaches	Peas	Tomatoes	Eggs	Potatoes
	lbs.	lbs.	15 oz. tins	20 oz. tins	28 oz. tins	doz.	10 lb. bag
1939	1.8	1.4	3.4	3.6	4.6	1.4	2.2
1944	1.9	1.4	4.7	4.8	5.2	1.6	2.3
1945	1.8	1.3	4.7	4.8	5.1	1.5	2.0
1946	1.7	1.2	4.4	4.7	4.9	1.4	2.0
1947	1.7	1.2	4.1	4.9	4.4	1.6	2.4
1948	1.6	1.1	4.1	5.0	3.7	1.5	2.3
1949	1.5	1.2	4.8	5.6	4.9	1.6	2.8
1950	1.6	1.3	5.1	6.0	5.9	1.8	3.1
1951	1.6	1.4	5.4	6.2	5.1	1.6	3.4
1952	2.0	1.9	6.0	6.3	4.5	2.2	1.9
1953	1.9	1.6	6.7	6.4	5.6	2.0	3.5
1954	1.9	1.5	6.9	6.7	6.5	2.5	3.8
1955	2.1	1.9	6.8	7.0	5.5	2.3	3.1
1956	2.1	1.9	7.0	7.5	5.5	2.4	3.0

The trend has been for the quantity of most foods purchasable with one hour's wages to increase. Round steak and blade roasts appear as exceptions to this trend among the 14 items listed. Apparently one hour's industrial wages would buy as much beef in 1939 as in 1956.

The data presented in this article reveal that the demand for food is quite responsive to changes in income. Per capita income has been increasing rapidly in recent years and per capita food expenditure has followed suit. During the last 20 years the average Canadian family has spent 21 to 24 per cent of its income on foods despite large changes in national per capita income. It is known that a much larger proportion of the income is spent on food in industrially less-developed countries where incomes are relatively low. The question arises whether further rises in income in industrial countries will result in less than 20 per cent of the income being spent on food. Although these data do not conclusively answer this question, they imply that it would take a considerable further rise in income to bring this effect. If so, continued increases in the national income will lead to corresponding increases in the expenditures for food. Part of this increase would result from greater demand by consumers for more processing, but farmers could expect that at least part would be reflected in increased demand for food at the farm level.

TRENDS IN THE CONSUMPTION OF CERTAIN GROUPS OF FOODS IN CANADA[1]

R. CHOQUETTE

The Economics Division and the Agriculture Division of the Dominion Bureau of Statistics have recently completed the revision and consolidation of food consumption statistics for the period 1926-1955. A number of patterns are apparent from these data. The most noteworthy of these are trends towards an increase in consumption of dairy products other than fluid milk and butter, of poultry meat and of processed fruits and vegetables. Trends of decreasing consumption for cereal products and potatoes are also clearly evident. Red meat consumption increased sharply from the levels of the later 1930's during World War II, and declined in the immediate postwar period, but has recently returned to wartime peak levels.

During the last 25 years, the period 1940-41 may be considered as one of low consumption of fluid milk, the average having been 0.8 pints per person per day; between the years 1942 and 1946, there was a rather considerable increase, about 11 per cent (Table). This increase gradually disappeared in the subsequent years and fluid milk consumption per person appears to have stabilized near the 1940-1941 level. The wartime peak in fluid milk consumption can be explained largely by the low price of fluid milk during the Second World War, with the granting of a subsidy of two cents per quart in December 1942, by the shortage of certain other foods such as butter, tea, coffee and sugar, by the rapid increase in disposable income and by the education given concerning the nutritive values of milk.

As for certain other dairy products, an increase of ten pounds per person has occurred since 1940 in the consumption of evaporated whole milk and one of less importance in that of evaporated skim milk as well as that of ice cream. Since 1939, the tendency has been the same for cheese, with an increase of more than 2.5 pounds, and for skim milk powder, with an increase of 2.8 pounds. On the other hand, there was a decrease of 4.0 pounds in the consumption of whole milk powder between 1943 and 1955.

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[1] For other data on trends in food consumption or expenditure see:
(1) Drayton, L. E. and G. J. Dobson, *Trends in Food Expenditure Patterns in Canada*, pp. 82-84 of this issue of *The Economic Annalist.*
(2) Ware, D. W. and L. E. Drayton, *Frozen Fruit and Vegetable Production in Canada*. *The Economic Annalist*, December 1956 (section on *Consumption*, p. 141).

Per Capita Consumption of Certain Foods and Classes of Foods Canada 1926-1955

Year[a]	Milk	Other dairy products except butter	Meats	Eggs	Poultry meat	Oils and fats	Cereal products[b]	Fruits		Potatoes	Vegetables		Dry beans and dry peas	Refined sugar	Coffee, tea, cocoa
								Fresh	Canned		Fresh	Canned			
	pt/day	lb.	lb.	doz.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
1926	0.86	13.2	....	23.4	9.4	....	190.2	....	3.7	239.7	....	....	20.8	92.4	8.4
1927	0.81	13.4	....	24.1	9.6	....	198.8	....	3.7	243.0	....	....	17.8	85.4	8.7
1928	0.78	14.2	....	24.8	9.8	....	193.9	....	4.6	284.2	....	....	17.8	92.6	8.8
1929	0.75	15.3	....	24.8	10.7	....	181.6	....	4.9	186.0	....	....	16.1	90.1	8.7
1930	0.80	15.2	....	24.4	11.3	....	187.9	....	4.7	235.9	....	....	17.7	92.9	9.8
1931	0.86	13.1	....	24.9	10.4	....	184.6	....	3.3	293.8	....	....	10.9	89.9	8.1
1932	0.84	10.8	....	24.0	12.5	....	189.6	....	3.3	210.8	....	....	11.0	87.2	8.7
1933	0.83	10.7	....	22.8	14.0	....	185.1	....	3.7	219.0	....	....	9.1	78.7	9.4
1934	0.85	11.4	....	22.3	17.1	....	182.8	....	3.8	265.4	....	....	9.5	83.2	9.1
1935	0.84	12.5	115.5	22.6	18.7	....	189.8	....	5.4	198.6	....	17.4	10.6	87.5	9.0
1936	0.85	14.0	119.7	21.8	18.6	....	184.0	....	6.9	197.5	....	21.4	9.4	85.7	10.7
1937	0.83	15.4	122.3	21.6	18.3	....	177.0	64.0	5.5	211.7	....	22.7	9.7	91.4	9.0
1938	0.89	15.9	117.6	20.9	18.1	....	192.6	65.6	5.4	173.2	....	22.0	8.9	92.6	10.0
1939	0.88	20.3	114.1	21.4	19.7	....	200.1	75.0	5.7	166.1	....	23.1	8.7	99.3	11.6
1940	0.81	20.7	121.1	20.1	20.6	....	172.5	75.1	7.9	213.0	....	24.1	8.9	96.5	11.5
1941	0.81	23.8	133.2	20.0	20.6	....	173.0	71.8	10.1	173.7	....	30.8	10.5	101.0	11.0
1942	0.87	26.6	144.3	21.2	24.5	....	197.6	85.3	6.2	189.1	....	34.1	6.5	76.6	10.9
1943	0.93	29.2	149.0	21.5	23.5	....	192.3	87.8	3.5	190.6	89.1	24.5	7.9	77.5	11.4
1944	0.97	27.0	152.7	21.1	24.8	....	192.3	96.1	6.1	166.6	96.7	41.3	4.0	86.6	14.3
1945	0.98	29.2	145.6	20.5	25.3	....	208.6	83.9	5.1	162.9	95.0	31.4	6.7	74.3	12.0
1946	0.97	29.2	135.3	20.6	21.7	....	191.8	92.4	7.9	152.6	88.9	37.4	7.3	75.1	14.2
1947	0.93	36.1	140.6	20.6	23.4	....	170.7	85.8	10.4	151.7	76.6	29.1	4.2	90.6	9.3
1948	0.87	35.8	128.4	19.2	18.2	....	146.8	70.6	9.1	168.4	84.1	33.3	5.6	100.5	12.4
1949	0.85	35.2	133.6	17.7	20.1	49.0	157.0	74.7	9.3	152.7	88.2	32.4	6.1	100.6	13.6
1950	0.84	38.1	126.0	17.9	20.5	51.2	166.0	72.8	9.9	180.8	92.1	31.5	6.6	101.0	12.9
1951	0.83	39.2	128.9	18.0	23.1	49.2	164.3	77.6	9.9	122.1	87.3	31.6	5.7	95.4	12.5
1952	0.82	39.9	131.2	22.1	28.6	49.7	160.0	84.6	10.9	147.9	86.1	33.4	3.9	96.2	13.0
1953	0.83	41.5	138.8	22.7	26.2	48.2	138.8	80.0	11.3	159.2	88.9	33.1	4.9	94.8	13.5
1954	0.82	41.2	147.3	24.3	28.4	49.7	155.6	77.6	11.4	127.1	87.3	31.5	3.8	94.2	12.7
1955	0.83	42.7	150.8	23.8	29.5	49.3	154.8	90.8	12.2	150.6	86.4	34.3	4.6	97.1	12.0

[a] The year used is the crop year for cereal products, fruits, potatoes, vegetables, dry beans and dry peas, and the calendar year for all other products.

[b] Includes rice and prepared breakfast foods. Year-to-year fluctuations are partly due to the lack of complete data on flour inventories in all positions.

During the years 1941-55, the apparent consumption of meats has increased by more than 17 pounds per person, the estimated total for 1955 being 150.8 pounds. More beef, pork and canned meats, but less veal, mutton and lamb, were consumed in 1955 than in 1941. The consumption of beef per head of population in 1955 amounts to 71.5 pounds, i.e. an increase of 13 pounds during this period; the greatest consumption of beef, i.e. 71.6 pounds, was registered in 1954. The consumption of pork also increased by six pounds, reaching a total of 57.6 pounds for the year 1955, the postwar record having been established in 1952, with 63 pounds. As for canned meats, their consumption increased from 2.3 pounds in 1941 to 4.5 pounds in 1955. On the other hand, the consumption of veal decreased from 10.7 pounds in 1941 to 8.7 pounds in 1955. The year 1945 was the year during which the consumption of this product was the highest, i.e. 12.5 pounds per head. The same variation applies to lamb and mutton, i.e. 2.8 pounds in 1955 as compared with 4.2 pounds in 1941 and 4.5 pounds in 1942 and 1944.

During recent years, the consumption of fish has been almost steady. Since 1935, the consumption of eggs has been the highest in 1954 and 1955, i.e. 24 dozen per person as compared with 18 during the period 1949-51. Since 1948, there has been a steady increase in the consumption of poultry, due especially to the popularity of broilers.

Complete figures on the consumption of the main fats and oils (including butter) are available only since 1949.[1] These figures show small annual fluctuations, with a total of 49.3 pounds in 1955 as compared with 49.0 pounds in 1949. Margarine, which was not available in Canada before 1949, was consumed at a rate of eight pounds per person in 1955. There was also in 1955 a decrease of almost ten pounds per head in the consumption of butter and an increase of six pounds in that of lard, as compared with the average for the five-year period 1935-1939.

During the last 30 years, the consumption of various kinds of flour registered a rather considerable decrease. In the 1926 crop year, for example, each person in Canada consumed about 190 pounds of cereals other than rice and prepared breakfast foods and in 1955 the average was only 155 pounds, a decrease of 35 pounds. Most of this decrease has taken place in the consumption of wheat flour, i.e. 29 pounds. There were some indications of a downward trend in flour consumption before World War II, but wartime conditions led to a return of the consumption level of the late twenties. After the end of the war, flour consumption dropped rapidly to its present level. Among kinds of flour, only rye flour has registered an increase. However, it is interesting to note that a rather pronounced increase has occurred for breakfast food products with a consumption figure of 7.3 pounds per person in 1955, as compared with five pounds consumed in 1934.

Grouping the consumption figures for the fresh form of the 13 main fruits, except bananas, for the crop years 1937 to 1955, their growing popularity can be seen, since there was an increase of 42 per cent in the consumption per person, to a total of more than 90 pounds for the year 1955. Of this total, there was an increase of 74 pounds for apples, oranges, grapefruits and grapes; only lemons, pineapples, strawberries and raspberries recorded a slight decrease in consumption.

The per capita consumption of canned fruits in 1955 exceeded three times that of 1934. On the other hand, since the last war, less dried fruits and more juices have been consumed. Although the consumption of frozen fruits is low as compared with that of fresh and canned fruits, the increase in the use of these products has been rapid during the last decade.

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[1] Data are available for earlier periods for butter, lard and shortening, but not for salad and cooking oils. Sale of margarine was banned until 1949.

One of the most significant facts revealed by the whole study is the extent of the decline in the consumption of potatoes since the 1926-1930 period; judging by the average of 141 pounds for the 1951-1955 period, representing a decrease of 97 pounds per person.

Data are assembled on the consumption of 13 fresh vegetables other than potatoes: namely among these the most popular were the following, by order of importance: tomatoes, carrots, onions, cabbages, lettuce and celery. Among the 13 vegetables under study, these constitute by themselves more than 85 per cent of the total quantity consumed fresh. Since 1946, there has been no significant tendency for this group; although, the consumption per person has increased somewhat for tomatoes, carrots, lettuce and celery. A record was established in 1944 and 1945, when the consumption of fresh vegetables especially tomatoes, cabbages and corn, was quite high, as compared with that of the last few years.

The consumption per person of those canned vegetables, for which data throughout the period are available, was considerably higher in 1955 than in 1935. During this 20-year period, the consumption of these vegetables has increased from an average of 21.3 pounds per person during the five crop years from 1935 to 1939 inclusive to an average of 32.8 pounds during the corresponding 1951-1955 five-year period, i.e. an increase of 54 per cent. The vegetables included in this group are the following: asparagus, yellow and green beans, beets, carrots, corn, peas, spinach, tomatoes and tomato juice. All these vegetables, except spinach, have helped in the development of the ever-growing popularity of canned vegetables. The most important increases in consumption were for beans, corn, peas and tomato juice; the consumption of beans increased from one pound in 1935 to 3.3 pounds in 1955, that of corn, from 3.2 to 5.2, that of peas from 5.6 to 8.2 and that of tomato juice, from two to 9.5. The quantity of frozen vegetables eaten per person in 1955 was six times greater than that of 1947.

During the last 25 years, less and less dry peas and beans have been used, the average being 10.9 pounds per person in 1931 as compared with 4.6 in 1955, while there was an increase of almost 58 per cent for nuts, canned baked beans and cocoa beans, the average being 12.1 pounds for the year 1955.

Since 1926, there has been a rather pronounced variation in the consumption of refined sugar. The 1942-46 period was one of relatively low consumption as a result of wartime rationing, the average being 78 pounds only per head of civil population; during the 1948-50 period, the quantity consumed per head was the highest, i.e. 101 pounds. If the 1951-1955 five-year period is compared with the 1935-39 period, no change is noticed in the consumption, the average being slightly more than 95 pounds. The quantity of 97 pounds in 1955 was the highest of the last five years. However, during the last few years, the consumption of honey and maple syrup has had a tendency to decrease.

Concerning tea, the data relate to the product in its usual imported form whereas, for coffee, the data relate to the product expressed on a "green beans" basis. This calculation procedure enables one to make a more ready comparison of changes in per capita consumption from year to year. The consumption of tea decreased by more than 30 per cent from 1926 to 1955, but that of coffee increased considerably, i.e. from 2.6 to 6.6 pounds during this same period.

WEST GERMANY'S "GREEN PLAN" FOR AGRICULTURE

E. JASKA

The Federal Republic of Germany is one of the more important food importing countries; about 25 to 30 per cent of the total food requirements were covered by imports during the period from 1949 to 1955 inclusive. These large import requirements are due to a substantial increase in population which has risen to about 53 million in 1957 from 39 million in 1939, and to the loss of the surplus producing area of Eastern Germany which includes the region east of the Oder-Neisse River.[1]

The plans made by the Allied Military Occupation Authorities after the war called for a considerable increase in food production in Western Germany. The Government of the Federal Republic of Germany announced in 1949 and again in 1953 that farm output had to be increased and agriculture had to participate fully in the recovery of the economy as a whole. The Government declaration of 1953 also emphasized that West German agriculture needed to prepare itself for the proposed common European market. These policy objectives are incorporated in the Agricultural Act of 1955. The various measures to achieve these objectives by the Federal and Länder Governments are outlined in what is referred to as the "Green Plan".

The Agriculural Act of 1955.—Although the Federal Government has set neither the targets for the level of agricultural production nor specified what particular proportion of the requirements of foodstuffs should be covered by domestic production, it is officially stated that farm output is to be increased to a level "as large as possible". In connection with the increase in agricultural production, the Government has stressed the need of improving the economic position of agriculture. This objective was emphasized in the Agriculture Act of 1955.[2]

According to the Agricultural Act, the Federal Government has to submit to the Bundestag and Bundesrat every year, a report on a survey of conditions prevailing in agriculture. Paragraph 2 of the Act explicitly prescribes that the report should deal with conditions in various agricultural regions, according to types of farming and sizes of farms. The needed information is secured from the bookkeeping accounts of some 6,000-8,000 farms, and relevant economic and agricultural statistics. The report must include the Government's views as to the extent to which the remuneration of hired and family labor has been in line with the wages obtained in other sectors of the economy, and as to whether farmers are securing reasonable profits for their activity as entrepreneurs and a reasonable interest is paid on the capital invested in agriculture.

If the Government considers that the farm income level is unsatisfactory, it has to suggest the measures to be taken in order to remedy such a situation. These may be in the field of trade, taxation, credit and price policy. However, the Act does not prescribe that these are the only measures to be used and avoids the indication of methods for the application of these measures.

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[1] The areas of Germany taken over by Poland and by the Soviet Union contained the best agricultural land in prewar Germany. The areas east of the Oder-Neisse River supplied food for some 14 million persons.

[2] Landwirtschaftgesetz vom 5 September 1955. In: *Der Grüne Plan 1. Grüner Bericht 1956.* Herausgegeben im Auftrage des Bundesministeriums für Ernährung, Landwirtschaft und Forsten. Bonn. 1956. p. 7.

"The Green Plan".—The first report on West German agriculture prepared under the Agricultural Act of 1955, as indicated above, was "Der Grüne Plan 1956" (The Green Plan 1956), a printed document of 323 pages. It was divided into two main parts: (1) a detailed report on West German agriculture, dealing particularly with the farm financial situation, and (2) a comprehensive description of policy measures to be taken by the Government to improve the economic position of agriculture. This report was submitted by the German Federal Government to the Bundestag and Bundesrat at the beginning of 1956.

The "Green Plan 1956" states that the share of agriculture in the national product has shown a declining trend in the postwar years. Although the contribution of agriculture and forestry to the national product increased from 12.5 billion DM ($Can. 2.9 billion) in 1954-55 to 13.6 billion DM ($Can. 3.1 billion) in 1955-56, the share of agriculture and forestry declined from 10.6 per cent to 10.2 per cent. In 1936 the value of agricultural production in the national product was 12.5 per cent.[1] Since a decrease may have occurred in both the absolute number of people working in agriculture and in the degree of their dependence on agricultural income (due to other part-time or temporary employment), the decline of the agricultural share in the national product does not imply that there was a relative decline in per capita income of the agricultural population. However, there are clear indications that the average level of agricultural earnings has lagged behind those of industrial workers.

In the "Green Plan 1956" a very detailed report was also published on the farm financial situation. It was based on the bookkeeping accounts of some 5,000 farms specified by agricultural regions, types of farming and size of farms. The main indicators or measures used in this survey, in analyzing the financial situation of agriculture, are the following: (a) returns to capital; (b) returns to labor and capital and (c) labor earnings. Some of these results are shown in the following table.

Financial Returns of West German Agriculture in 1954-55

	Returns to capital[a]	Labor earnings[b]	Returns to labor and capital[c]	
	Per acre of agricultural land	$ Can. Per worker	Per worker	Per acre of agricultural land
Sugarbeet farms	27.91	1,044	1,264	96.77
Root crop farms	20.70	783	964	81.89
Potato farms	13.40	772	923	51.11
Root crop—grain farms	9.34	692	859	58.78
Grain—root crop farms	8.60	608	783	61.28
Grain—grassland farms	3.70	536	771	39.37

[a] *Returns to capital* is the reward on the capital invested, and it represents the amount which farmers have at their disposal as interest on the invested capital. The method used for calculating "returns to capital" is as follows. It is the difference between receipts and expenses of a farm as defined in the following sentences. The farm receipts, are made up of current farm receipts and increases in inventory. Perquisites, which represent the use of the farm house and products raised on the farm and consumed by the farm family are also included in the receipts. Farm expenses include current expenses (excluding interest on borrowed capital), decreases in inventry, depreciation on buildings and equipment, and allowances made for operator and unpaid family labor.

[b] *Labor earnings* is the return to the farmer (operator) for the use of his and his family labor after interest on investment has been deducted from the "return to labor and capital". The interest rate used in the "Green Report" is 3⅓ per cent, and it represents the approximate return which could be obtained if the money were invested elsewhere in Western Germany.

[c] *Returns to labor and capital* is a measure mainly used in connection with the financial returns to small (family) farms in various European countries. This represents payments for managerial services of the farmer, the labor of himself and of his family, together with interest on capital invested in farm. Returns to labor and capital can be calculated by adding the "Returns to capital" to the estimated value of the "operator's and unpaid family labor".

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[1] *Output and Expenses of Agriculture in some European countries.* Second Report: 1950-1953. Published by the United Nations and the Food and Agriculture Organization. Geneva. July 1955. p. 128.

According to published farm income data[1], sugar beet, potato and root crop farms show satisfactory financial results in general, whereas root crops-grain, grain-root crop, and grain-grassland farms are much less profitable. The data presented in the Table show that the average returns to capital per acre of agricultural land and the average labor earnings per worker on the grain-grassland farms were about 87 per cent and 49 per cent below those obtained on sugar beet farms. The difference in other returns was also great: the grain-grassland farms secured in 1954-55 about 60 per cent less return to labor and capital per acre and 39 per cent less per worker than sugar beet farms which are located in the areas of best soils, and "obtain a good profit with high yields and intensive management". In contrast, a large number of grain-grassland farms operate under unfavorable natural and structural conditions, e.g. in mountain areas where the soil is poor. On those grassland farms yields and financial returns are comparatively small. The financial results of other types of farms were between the types described above, and they also varied from region to region. In addition, the financial returns varied greatly with the size of the farms; the best results were obtained on the farms over 50 hectanes (123 acres) in size.

The average income obtained by an industrial worker per year was about 3,500 DM ($Can. 800). This means that the labor earnings obtained on sugar beet farms, including farms over 50 hectares (123 acres) of root crop and root crop grain types may be considered satisfactory. In other words, in 1954-55 about six per cent of West German farmers obtained higher per caput labor earnings than an average industrial worker. On other types of farms, particularly grain-grassland farms, labor earnings were considerably below 3,500 DM. The average estimated labor earnings from farming for the whole country, according to the "Green Plan", were about 29 per cent below those of an industrial worker; this means that the average labor earnings in west German agriculture were about 2,500 DM ($Can. 571) per worker in 1954-55.

To raise labor earnings and returns on investment in agriculture, the Federal Government of Germany has recourse to a variety of ways and means; all are described in detail in the "Green Plan". In increasing agricultural incomes preference is given to policies designed to reduce production costs and to increase productivity. The program includes:

(1) **Measures designed to reduce production costs:** Abolition of the turnover tax at the producer level; increase of subsidies on fuels; conversion of short-term debts into long-term debts and remission for three years of taxes in certain lowland areas.

(2) **Measures to increase production and improve marketing methods:** Subsidies and assistance for flood protection, dams, drainage, irrigation, land reclamation and development of waste and marsh land; reduction in price and increased use of fertilizers; subsidies for dairy farming; increased use of better seeds and varieties; improved marketing of fruits, vegetables and potatoes; construction of farm roads; development of electricity networks and electrification of additional country areas; reduced rates of interest for erecting or rebuilding (modernization) farm buildings; promotion of agricultural co-operatives and pooling of machinery; and setting up industrial enterprises in over-populated small-holding areas.

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[1] To evaluate the data of farm accounts statistics, one should know that before the introduction of the Agricultural Act, data of 5,000 bookkeeping farms were analyzed by the Federal Ministry of Food and Agriculture. Since it is obligatory for all larger farms to keep books, the evaluated farms represent at least the average. The smaller holdings included in the evaluation and which keep books only on a voluntary basis are, as a rule, farms with a management above average, because voluntary bookkeeping can generally be considered as a criterion for a progressive farm manager.

(3) **Measures to effect permanent improvements:** Redistribution of land; consolidation of small farms; subsidies and credits for redistribution of land in the North German lowland districts and in South Germany.

(4) **Measures for improvements in social and labor conditions:** Promotion of the building of dwellings for farm workers; social benefits on the same scale as in other industries; and measures to raise education level of farm youth; and old age insurance.

(5) **Measures for better training, advisory work and research:** More training facilities and better extension service.

Measures Carried Out and Expenditures.—The measures described above were approved by the West German Parliament in February 1956 and published in the "Green Plan 1956". Since then a number of these measures have been carried out by the Federal Government. Some of these are as follows: reduction in fertilizer and diesel oil prices; reduction in the price of seed potatoes; subsidy for the building of fodder silos on small farms; subsidy to encourage milk inspection on small and medium size farms; increase in the Federal allocations for the control of epizootic diseases; relief from turnover tax at the producer level; additional funds for training and advisory work; and speeding up and extension of measures for improving farm structure.[1]

The Federal and the Länder Governments are jointly responsible for the promotion of agricultural and forestry production, the safeguarding of food supplies, imports and exports of agricultural and forestry products, deep sea and coastal fisheries and coastal preservations. Although the Federal and the Länder Governments have separate budgets which are independent from one another, both the Federal and the Länder Governments have made funds available in pursuance of the Green Plan. In 1956, for instance, the actual expenditures for agriculture covered by the Federal Government amounted to about 616 million DM ($Can. 141 million), and in 1957 they would be raised to 1.212 billion DM ($Can. 276 million), of which about one billion DM ($Can. 230 million) are to be used as direct subsidies. The Länder Governments' expenditures for agriculture and food in 1955, before the "Green Plan" started, were about 475 million DM ($Can. 108 million), and this amount probably was increased in 1956.

To implement the "Green Plan" for 1957, the Federal Government will make available: 450 million DM ($Can. 102.7 million) for improvement of the quality of milk, milk distribution at schools, and for improvement of dairy installations; 260 million DM ($Can. 59.4 million) in subsidies on fertilizers; 190 million DM ($Can. 43.4 million) for agricultural improvement projects; 165 million DM ($Can. 37.7 million) for redistribution of land and consolidation of small farms; 35 million DM ($Can. 5.7 million) for consolidation of short-term debts; 20 million DM ($Can. 4.6 million) for improvement of farm machinery and equipment; 16 million DM ($Can. 3.6 million) to relieve farms in certain areas under the Equalization of Burdens Act; and 15 million DM ($Can. 3.4 million) for agricultural research, training programs and advisory services; 11 million DM ($Can. 2.5 million) for subsidies on seeds and 10 million DM ($Can. 2.3 million) for measures to promote settlement of farm works.[2]

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[1] A report on West German agricultural policies appears in *Agriculture Abroad.* Vol. XII. No. 2. April 1957.

[2] Het "Grüne Plan". In: *Landbouw Wereldnieuws.* Jaargang 12. No. 10. s'Gravenhage, March 9, 1957.

Summary.—West German agriculture has recovered quickly from the aftereffects of the war, and farm output is considerably higher than before the war. However, this over-all recovery and expansion of production has not been achieved without guaranteed prices, high tariffs, import controls, and this kind of "protection" is still increasing under the "Green Plan".

Measures carried out under the "Green Plan" by the Federal and the Länder Governments may be considered effective in general, and some further progress in the development of agricultural production is to be expected. Because food consumption is also expanding, it is expected that the volume of food imports into Western Germany in the near future will not drastically change even though some changes may occur in the pattern of food imports.[1] However, the rate of self-sufficiency in foodstuffs in Western Germany may continue to stay between 70 and 75 per cent.

SOME COSTS OF CANNED TOMATOES, 1948-1953

R. E. F. JONES

Tomatoes are one of the major crops processed in Canada; they accounted, on the average, for about 42 per cent of the value of all vegetables processed during the six years covered in this article. Consumers, farmers, and others, therefore, wish to know something of the spread between the average retail price paid by the consumers themselves and the value of tomatoes at the farm gate. This spread is the return to marketing agencies for their distributing and processing services. Calculations of the total spread, between the price received by the farmer and that paid by the consumer, have been made by the Economics Division for some years and data on price spreads or marketing margins have been published in *The Economic Annalist* from time to time.

The farmer's share of the consumer's dollar for canned tomatoes has averaged about 20 per cent since 1948. On the other hand, over half of that dollar has been absorbed by processing costs. More specific details on the major items of costs incurred in the canning of tomatoes can be gathered from returns sent to the Dominion Bureau of Statistics[2] by Ontario plants, canning tomatoes only.

Ontario is the principal producer of tomatoes in Canada, accounting for about 77 per cent of the total tomato acreage in Canada during the 1948-53 six-year period. The plants which canned only tomatoes were not all the same from year to year. The output of these plants rose from 17 per cent of all tomatoes canned in Ontario in 1948 to a high of 39 per cent in 1949 and then dropped to 20 per cent in 1953.

Raw Tomatoes.—The average price paid for raw tomatoes corresponded rather closely to that paid by all Ontario plants in most of the six years. (Table 1). The largest discrepancy occurred in 1953, when the selected plants reported prices $1.57 a ton less than the Ontario average. In every year except 1953, the plants examined have paid slightly more than the Ontario contract price for ungraded tomatoes, but in 1953 the price they paid was lower than the price for ungraded tomatoes. The explanation would appear to be that some of the plants bought tomatoes graded as No. 2's for which the contract price was $28.00 per ton.

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[1] Germany. In: *Agricultural Policies in Europe and North America.* First Report of the Ministerial Committee for Agriculture and Food. Published by the O.E.E.C. Paris. May 1956. p. 84.

[2] The Dominion Bureau of Statistics collects returns from canning plants operating in Canada. These returns show factory sales by quantity and selling price and several categories of expense.

In year-to-year comparisons, it was found that the amount of fresh tomatoes purchased by these plants to produce one pound of canned tomatoes averaged 1.95 pounds in 1948 and 1.68 pounds in 1953 with an average for each of the six years of 1.78 pounds. One result of this variation in requirements of fresh tomatoes per pound of canned tomatoes was that variations in the cost to canners per pound of product followed a different pattern than variations in the average price of tomatoes used by these plants. Thus, comparing 1948 and 1953, the cost of tomatoes per ton of product differed by about $1.00 whereas the price of fresh tomatoes differed by more than $5.00 (Tables 1 and 3).

Labor.—The wage costs, per pound of canned tomatoes, rose by 88 per cent from 1948 to 1950 and then declined to a point, in 1953, only 27 per cent above the 1948 figure. (Table 3). The Department of Labour of the Government of Canada publishes figures on hourly wage rates of people working in the fruit and vegetable canning plants of Ontario and in various other industrial working groups[1]. These figures indicate that, with very few exceptions, every labor group recorded had an increase in wages each year from 1948 to 1953. By 1953 the rise from the 1948 level varied from a low of 21 per cent from one industrial workers group to a high of 89 per cent for another.

Table 1.—Prices of Canning Tomatoes, Ontario, 1948-1953

——	1948	1949	1950	1951	1952	1953
	– dollars per ton –					
Reported plant price[a]	26.47	23.42	23.90	28.29	35.82	31.79
Ontario, average price	26.27	23.63	23.23	29.85	35.63	33.36
Ontario contract prices						
Grade 1	30.10	27.60	26.85	32.00	40.00	38.00
Grade 2	20.10	17.60	16.85	22.00	30.00	28.00
Ungraded	25.10	22.60	21.85	27.00	35.00	33.00

a) Total reported cost of tomatoes, for plants included in the study, divided by tons purchased.

One would thus expect a gradual increase in the wage costs per pound of finished product (canned tomatoes), instead of an increase up to 1950 and a decline from 1950 to 1953. The explanation may very well be that the firms studied increased their capital investment in order to attain greater labor efficiency. For example, there was an increase in the cost of electricity per pound of tomatoes. Part of the rise in the wage cost, per pound of tomatoes, in 1950, may also be explained by the comparatively low volume of tomatoes processed that year; costs would then be higher per pound of product.

Containers.—The cost of containers includes the costs of cans, cartons, labels, and glue. It is a substantial part of the canning costs, amounting to between 25 and 35 per cent of the value of sales. Table 2 shows that for three years, 1949, 1950 and 1953—containers were the largest of any recorded costs. The increase in cost of containers between 1948 and 1953, per pound of tomatoes, amounted to 29 per cent of the cost in 1948 and occurred mostly in the last two years. This increase would probably have been larger had not the average contents per dozen cans risen from 20.4 pounds in 1948 to 22.2 pounds in 1953.

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[1] *Wage Rates and Hours of Labour in Canada.* Annual Reports. Economics and Research Branch, Department of Labour, Ottawa, Canada.

Table 2.—Comparative Reported Costs and Returns, Selected Tomato Canning Plants, Ontario 1948-1953

——	1948	1949	1950	1951	1952	1953
Sales	1,287,752	1,479,922	648,173	1,210,235	2,424,369	705,260
LESS COST OF SALES						
Tomatoes	393,628	427,356	159,132	333,362	788,228	250,610
Wages	156,581	355,086	152,840	226,125	419,482	123,703
Containers	335,187	504,842	177,926	279,613	595,433	269,647
Total	**885,396**	**1,287,284**	**489,898**	**839,100**	**1,803,143**	**643,960**
Other costs	402,356	192,638	158,275	371,135	621,226	61,300
	1,287,752	1,479,922	648,173	1,210,235	2,424,369	705,260
Number of plants	25	30	15	22	27	15

Effect of Scale of Business.—The canning of tomatoes is still carried on in small plants in Canada. There are very few mechanical peelers in operation and tomatoes are usually peeled by hand, in all plants, so that labor costs are not materially reduced by large scale production. For this reason, the canners, with a small output of say 300,000 pounds of tomatoes or less in many cases, can compete successfully with the larger canners.

Table 4 shows a rough average of reported sales, costs and other expenses of the plants for the years 1948 and 1953, grouped into classes depending on the amount of fresh tomatoes purchased. The purpose of the table is to show what effect the size of the operation has on the firm's sales less reported expenses. Average "net return", i.e. sales less reported expenses, in 1948, was as expected, the largest "net return" going to the group of firms which sold the most[1]. In 1953, a large loss by one of the largest groups reduced the "net return" of this group to second place.

Costs were calculated for labor, tomatoes, and containers, per pound of tomatoes purchased, for each of the size groups shown in Table 4. The results for 1948 were as expected; lower costs of labor and containers per pound were

Table 3.—Comparative Reported Costs and Returns Per Pound of Canned Tomatoes Sold, Selected Tomato Canning Plants, Ontario, 1948-1953

	– cents –					
Sales	8.491	6.968	8.246	9.761	9.506	7.445
LESS COST OF SALES						
Tomatoes	2.595	2.013	2.024	2.689	3.091	2.645
Wages	1.032	1.672	1.945	1.824	1.645	1.306
Containers	2.210	2.377	2.264	2.255	2.335	2.846
Total	**5.837**	**6.062**	**6.233**	**6.768**	**7.071**	**6.797**
Other costs	2.654	.096	2.013	2.993	2.435	.648
	8.491	6.968	8.246	9.761	9.506	7.445

---

[1] "Net return" as used here includes such fixed costs as taxes and depreciation as well as profit or loss.

Table 4.—Comparative Results by Groups of Plants, Based on Weight of Fresh Tomatoes Used 1948 and 1953

Tomatoes Used	Number of firms		Average sales		Average reported costs		Average net return	
	1948	1953	1948	1953	1948	1953	1948	1953
– pounds –	– thousand dollars –							
Under 1 million	10	7	30	22	19	19	11	3
1.0 to 1.5 million	8	5	50	57	36	50	14	7
1.5 million and up	6	3	97	88	68	87	29	1

recorded by the largest groups, making the size advantage noticeable. In 1953, the picture was obscured by the loss suffered by one of the largest companies, and by other factors. On the basis of 1948, supported in part by 1953, the results did show that the amount of net return did depend on the quantity of canned tomatoes sold by the groups of plants. The larger the sales, the lower the unit costs and the higher the return.

Examinations of returns of the individual plants within each of these groups revealed that factors other than scale, probably related to managerial skill, are important in making profits or losses. Some plants in the smallest size group realized a higher return (i.e. sales less reported costs) than most of those in the next group and more than some in the largest group. These factors show up in the results of the plants in 1953 when difficult tomato canning conditions prevailed. In that year three plants using under one million pounds of tomatoes had a higher net return than two plants using over 1.5 million pounds.

Other Costs.—The three costs studied in this article, tomatoes, labor and containers, make up about two-thirds of the selling price of the factory's production. This leaves one-third to cover all other expenses, including profit. Comparing the years 1948 and 1953, the selling price of tomatoes sold by these plants had fallen 11 per cent, the cost of raw tomatoes was slightly higher but had fallen from the previous year, the costs of labor and containers had risen 28 per cent and 29 per cent respectively and the other costs not listed and any profit had declined by 69 per cent. Some of the costs included in the "one-third to cover all expenses" are quite rigid as they include such things as insurance, taxes, repairs and depreciation so that when the price of canned tomatoes falls as it did in 1953, a large part of the loss is borne by the manufacturers' profit. The rigidity of about one-half to two-thirds of the costs makes any percentage drop in the price of raw tomatoes result in a much smaller percentage drop in the sale price of the finished article.

AUTOMATIC MERCHANDISING

Vending machines are a fairly new development in the merchandising of foods. Up to about 30 years ago those machines were generally impracticable for the merchandising of goods costing more than one cent per unit of sale. Pilfering was too easy.

In recent years, however, the vending machine has been much improved. It is now commonly used for the sale of soft drinks, candy bars, gum and cigarettes. Some innovations include vending machines for the sale of hot coffee, soup and even meals.

As a result, some people foresee the possibility that vending machines will play a major role in food merchandising in the near future. Others point to serious limitations of vending machines: their inability to change paper money, the need of products small in size and weight for convenient machine handling, and the space requirements for the sale of a large variety of lines.

In a book published in 1954, Dr. Martin V. Marshall of the Graduate School of Business Administration, Harvard University, appraises the role of automatic vending in the distribution of consumer goods, its limitations and its usefulness.

He examines the problems of established operators of vending machines and describes the organization of vending machine operations. He also describes the various types of machines and the most suitable location for these machines[1].

His examination of data on costs and profits of vending machine operations leads him to the conclusion that "vending is a high-cost method of doing business".

Dr. Marshall describes a number of experiments on the new uses of vending machines. These experiments suggest that food venders will continue to gain importance in feeding industrial employees and may play an important role on passenger trains. Experiements in sale of selected department store merchandise have been less encouraging.

It seems probable that the use of vending machines will continue to expand in the merchandising of food but it is unlikely that existing supermarkets will ever be replaced by long lines of vending machines. The mechanization of food merchandising is a possibility but if it does occur it will probably take a quite different form than the installation of innumerable vending machines.

One form which it may take is suggested by an experiment planned by the Independent Grocers Alliance in Chicago. This experiment involves the use of an electronic device for the automatic delivery of merchandise to the check-out counter when the customer selects an item from a list of merchandise.

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[1] Marshall, Martin, *Automatic Merchandising*, Graduate School of Business Administration, Harvard University, Boston, Mass., 1954, pp. 275.

UNITED NATIONS PUBLICATION

Statistics of National Income and Expenditure. Statistical Papers Series H No. 10, Statistical Office of the United Nations. New York, January 1957, pp. xvii +280.

The tenth in a series (H) of statistical papers on national accounts, for many individual countries, prepared by the Statistical Office of the U.N. A brief introduction reviews the conceptual framework and provides definitions, in detail, of the items listed in the standard tables. These standard tables deal with: expenditure on gross national product; industrial origin of gross domestic product; distribution of the national income; the finance of gross domestic capital formation; composition of gross domestic fixed capital formation; receipts and expenditures of household and private non-profit institutions; composition of private consumption expenditure; general government revenue and expenditure; and, external transactions.

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THE ECONOMIC ANNALIST

A BIMONTHLY REVIEW OF AGRICULTURAL BUSINESS

MARKETING SERVICE, ECONOMICS DIVISION

J. F. BOOTH, Chief

OCTOBER 1957 **Vol. XXVII No. 5**

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Minister of Agriculture

ANNUAL AND MONTHLY INDEX NUMBERS

WHOLESALE PRICES, FARM PRICES AND LIVING COST INDEXES

Year and Month	General Wholesale Price	Wholesale Prices of Canadian Farm Products[a]			Farm Prices of Agricultural Products[b]	Prices of Commodities and Services used by Farmers		Consumer Price		Industrial Production
		Total[b]	Field[b]	Animal		Composite[c]	Equipment and Materials[d]	Total	Food	
				1935–39=100				1949=100		1935–39=100
1913	83·4	....	....	....	....	....	85·4	49·2	44·4	....
1914	85·4	....	....	....	....	85·3	90·2	49·6	46·0	....
1915	91·8	....	....	....	....	91·6	96·9	50·3	46·8	....
1916	109·8	....	....	....	....	100·5	101·7	54·2	51·8	....
1917	148·9	....	....	....	....	140·5	140·7	63·7	66·9	....
1918	166·0	....	....	....	....	160·2	164·1	72·0	76·9	....
1919	174·7	....	....	....	....	167·9	169·1	78·8	82·2	....
1920	203·2	....	....	....	....	186·5	190·1	90·5	94·4	....
1921	143·4	....	....	....	....	152·5	147·4	80·9	72·5	....
1922	126·8	....	....	....	....	134·1	124·6	74·9	61·5	....
1923	127·7	....	....	....	....	130·6	118·3	75·2	61·9	....
1924	129·5	....	....	....	....	131·9	122·3	74·0	60·7	....
1925	133·8	....	....	....	....	131·8	123·2	74·6	63·4	....
1926	130·3	144·4	158·5	130·2	....	130·6	119·9	75·9	66·6	....
1927	127·3	138·6	149·4	127·8	....	131·2	119·9	74·6	65·3	....
1928	125·6	136·3	134·3	138·2	....	129·3	118·3	75·0	65·6	....
1929	124·6	140·8	137·2	144·4	....	127·9	117·6	75·8	67·1	....
1930	112·9	119·5	105·8	133·3	....	117·0	105·6	75·3	65·6	....
1931	94·0	78·9	65·0	92·7	....	100·9	92·2	67·9	51·4	....
1932	86·9	65·5	60·4	70·5	....	93·3	89·3	61·7	42·8	....
1933	87·4	69·3	69·3	69·2	....	89·8	88·8	58·8	42·3	....
1934	93·4	83·5	80·5	86·5	....	95·5	96·8	59·6	46·2	....
1935	94·4	89·2	84·4	94·1	88·0	95·4	95·6	59·9	47·2	85·6
1936	96·8	97·9	102·2	93·7	96·9	98·1	98·7	61·1	48·8	94·6
1937	107·7	117·4	128·9	106·0	119·7	105·3	108·4	63·0	51·4	108·0
1938	102·0	102·9	100·9	104·8	105·0	101·7	101·2	63·7	51·7	102·0
1939	99·2	92·6	83·7	101·5	91·8	99·3	95·7	63·2	50·2	109·7
1940	108·0	96·1	85·4	106·7	96·8	106·8	101·8	65·7	52·6	131·4
1941	116·4	106·6	88·9	124·4	110·2	116·1	107·8	69·6	57·9	164·8
1942	123·0	127·1	109·7	144·6	133·1	131·6	119·2	72·9	63·4	195·7
1943	127·9	145·4	129·0	161·8	157·8	143·4	122·4	74·2	65·2	208·5
1944	130·6	155·3	144·5	166·1	172·4	148·0	126·0	74·6	65·5	212·4
1945	132·1	166·4	162·5	170·2	185·7	152·1	125·9	75·0	66·3	187·2
1946	138·9	179·5	177·9	181·2	204·1	157·0	128·0	77·5	70·0	171·9
1947	163·3	192·2	184·1	200·2	215·8	170·4	139·5	84·8	79·5	187·8
1948	193·4	232·1	200·6	263·7	255·8	197·6	173·1	97·0	97·5	196·3
1949	198·3	228·7	191·9	265·4	255·4	204·1	180·3	100·0	100·0	199·6
1950	211·2	236·7	191·9	281·4	260·8	210·4	189·9	102·9	102·6	211·5
1951	240·2	268·6	200·4	336·9	296·8	230·0	206·0	113·7	117·0	226·5
1952	226·0	250·2	223·0	277·5	274·4	243·1	215·8	116·5	116·8	233·0
1953	220·7	221·6	179·4	263·8	250·4	234·8	207·4	115·5	112·6	248·4
1954	217·0	213·6	170·9	256·2	236·8	237·2	203·3	116·2	112·2	244·6
1955	218·9	209·7	174·4	245·1	232·7	238·3	204·6	116·4	112·1	265·8
1956	225·6	210·2	173·5	246·9	231·0	247·6	208·8	118·1	113·4	284.4
1956										
Oct.	227·1	208·0	159·9	256·0	227·3	....	....	119·8	117·4	288·7
Nov.	226·6	209·4	163·1	255·7	225·2	....	....	120·3	117·9	290·1
Dec.	228·1	210·3	164·4	256·2	225·0	....	....	120·4	117·5	290·1
1957										
Jan.	229·4	211·6	166·0	257·2	227·1	247·0	212·3	120.3	117.1	291·1
Feb.	228·4	210·1	161·3	259·0	227·5	....	....	120·5	117·2	292·0
Mar.	228·4	206·8	160·2	253·4	224·4	....	....	120·5	116·4	290·9
April	228·4	207·5	159·9	255·1	224.0	258.6	212.0	120·9	116·7	287.8
May	228.0	206.4	157.5	255.3	224.0	....	....	121.1	116.7	286.9
June	228.0	208.4	154.6	262.2	225.9	....	....	121.6	117.7	284.1
July	228.2	212.7	155.1	270.2	229.4	....	....	121.9	118.2	....
August	227.6	....	....	....	....	....	....	122.6	120.2	....
Sept.	....	....	....	....	....	....	....	....	....	....

Source:—Dominion Bureau of Statistics, Ottawa.

(a) Prices at terminal markets.

(b) Indexes August 1955—July 1956 include final barley and oats payments announced November 15 and 29, 1956.

(c) Exclusive of living costs. Includes farm implements, building materials, gasoline, oil, greases, feed, fertilizer, binder twine, seed, hardware, tax rates, interest rates and farm wage rates.

(d) Differs from composite index by exclusion of tax rates, interest rates, and farm wage rates.

THE ECONOMIC SITUATION

Wheat.—In an address to the National Dairy Council of Canada, at Winnipeg, on September 9 the Minister of Trade and Commerce made some comments on the wheat situation. Among other things, he said:

> It would seem wise to take a long-range view of our wheat problem rather than living just from crop year to crop year. I think it is wrong to consider our surplus wheat production as a millstone around our necks. Rather, we should be deeply grateful that such an abundant food supply is available. Canada has been in the wheat business now for two full generations and our wheat production is a permanent feature of our economic history. From the experience of the past, we should recognize that there will be recurring instances of under-production and over-production.
>
> * * * * * *
>
> We must also recognize the fact that the world demand for wheat does not rise and fall with the abundance of wheat that is available, but maintains year after year a remarkably steady total of consumption. Last year's increased world consumption can be attributed almost entirely to United States gifts of wheat to Eastern countries not ordinarily using wheat. We have also to recognize the fact that, as advanced countries achieve a higher standard of living, their consumption of wheat does not increase but that the extra money available for food is spent on meat, fruit and vegetables.
>
> The long-range view with regard to our wheat entails a forward-looking policy with regard to general production, and it may well be that progressively over the years our acreage devoted solely to the growing of wheat should be appreciably reduced and greater emphasis should be placed on diversified crops and on the livestock industry. If this is done, wheat production might be kept to the average figure of 400 million bushels and the acreage released from wheat growing might be more suitably utilized for fodder crops to support an increased number of livestock.

Labor Force.—Canada's civilian labor force exceeded six million for the first time in history in July this year, rising to an estimated 6,112,000 on July 20 from the previous peak of 5,996,000 on June 22. In 1956 the labor force was estimated at 5,891,000 in July and reached a peak, for the year, of 5,926,000 in August.

The number of persons with jobs was estimated at 5,949,000—also a new peak—on July 20 this year, an increase of 115,000 from June and 160,000 from July 1956. The number of persons without jobs and seeking work totaled 163,000, about the same as in June, but about 61,000 more than in July 1956.

The increase in the labor force was from June to July slightly smaller this year than in 1956 but the increase in employment was much smaller. There was not the usual decline in the number of persons without jobs and seeking work. Non-agricultural jobs rose by 9,000 compared with an increase of 49,000 in the same month last year and agricultural jobs rose by 106,000 compared with 93,000.

External Trade.—Canada's commodity exports were slightly higher in value in July 1957 than in July last year but imports remained at about the same level. Total exports were valued at $449.3 million compared with $430.3 million in July 1956 and imports were estimated at $482.9 million compared with $482.5 million in July last year. The resulting import surplus declined from $52.2 million to $33.6 million in July 1957. For the January-July period, exports totaled $2,779.8 million in 1957 and $2,734.3 million in 1956 whereas imports were estimated at $3,338.2 million and $3,327.8 million respectively; the estimated import surplus thus rose to $608.4 million from $593.5 million in the January-July period of 1956.

Exports to the United States increased to $255.3 million from $237.5 million in July 1956, bringing the seven-month total to $1,646.6 from $1,611.1 million. Imports in July 1957 were estimated at $336 million, a drop from the $341.7 million recorded in July last year; the seven-month total, however, rose to $2,477 million from $2,458.9 million. The excess of imports over exports fell to $80.7 million in July 1957 from $104.2 million in July 1956 and to $830.4 million in the January-July period of 1957 from $847.8 million in the corresponding period of 1956.

Exports to the United Kingdom declined to $69.3 million in July 1957 from $75.9 million in July last year and imports decreased only to $45.5 million from $45.9 million. Over the first seven months of the year exports fell to $410.3 million from $447.4 million but estimated imports rose to $305.6 million from $284.7 million. The export surplus in July declined to $23.8 million from $30 million and the surplus in the January-July period to $104.7 from $162.7 million.

July exports to other Commonwealth countries were valued at $20.2 million compared with $20.7 million in July 1956, bringing the cumulative total for the first seven months of the year to $133.7 million from $149.3 million. Imports from this group of countries were valued at $21.3 million in July 1957 compared with $22.4 million in July 1956 and at $129.6 million in the January-July period of 1957 compared with $120.1 million in the corresponding period of 1956.

Exports to all other countries were valued at $104.5 million in July 1957 and $96.2 million in July last year. Cumulative totals for the January-July periods were $589.2 million and $526.5 million for 1957 and 1956 respectively. July imports were estimated at $80.1 million in 1957 and $72.5 million in 1956, bringing the cumulative totals for the first seven months of the year to $476 million in 1957 and $464.1 million in 1956.

Wholesale Prices.—Canada's general wholesale price index (1935-39 = 100) rose only from 228.0 to 228.2 between June and July, maintaining the plateau of between 228.0 and 228.4 that had prevailed since February.

Four of the eight component groups of the index—animal, textile, iron and chemical products—rose during July, but of these four groups the animal products group was the only one to show a significant increase, rising 1.7 per cent from 241.6 to 245.8.

Higher prices for eggs, potatoes, milk in western Canada, butter in some centres, poultry, beef hides, hogs and all pork products were mainly responsible for the upward movement of the animal products group. Lower prices were recorded for steers, calves, lambs, calfskins, cheese, beef, lamb and veal.

Consumer Prices.—Canada's consumer price index rose from 121.9 to 122.6 between July and August 1957. The rise was largely seasonal in nature and attributable mainly to an advance in the food index from 118.2 to 120.2. Decreases were reported for all fresh vegetables, apples and coffee; substantially higher prices were reported for eggs and pork and smaller price rises for butter, grapefruit and beef.

The shelter index moved from 135.1 to 135.3 as a result of further slight increases in the rent and home-ownership components. Clothing declined form 108.4 to 108.2. Seasonal increases in the price of coal were partially offset by somewhat lower prices for fuel oil and the household operation index changed fractionally from 119.6 to 119.7.

THE CAPITAL STRUCTURE OF CANADIAN AGRICULTURE

PART II, THE PRAIRIE REGION

BALDUR H. KRISTJANSON

The first in this series of two articles summarized the national picture of capital investment in Canadian agriculture.[1] We turn now to a more detailed analysis within one area—the Prairie Region—based on studies conducted by the Economics Division. The two principal types of farming of this area are examined here.

Grain Farms.—Studies carried out in 1954 provide data on capital investment on grain farms in Saskatchewan. Three typical sizes of wheat specialty farms on two soil productivity levels will be discussed with respect to real estate investment and the costs of equipment. Little or no livestock are found on such farms but farm equipment is of particular interest. The three common sizes are the half-section, one-section and two to three-section farm units.

On the Regina heavy clay (highly productive) soils, the investment in a half-section (320-acre) farm is likely to be in the neighborhood of 27 to 28 thousand dollars per farm. The lower productivity soils (Weyburn loam) have an investment of about $18,000 per farm (Table 1). On a per-acre basis this amounts to 87 and 54 dollars per acre for high and medium productivity soils respectively. These figures apply to total investment.

Table 1.—Typical Capital Investment on Small, Medium and Large Wheat Farms, Saskatchewan Prairie, 1954[a]

——	Soil Productivity[b]					
	High	Medium	High	Medium	High	Medium
	— dollars per farm —		— dollars per acre —		— per cent —	
HALF-SECTION FARMS (320 ACRES)						
Land and buildings[c]	21,559	9,708	68	29	79	53
Machinery and equipment[d]	5,881	7,534	19	22	21	41
Livestock and poultry[c]	96	1,050	—	3	—	6
Total	**27,536**	**18,292**	**87**	**54**	**100**	**100**
ONE SECTION FARMS (640 ACRES)						
Land and buildings[c]	41,854	19,148	65	30	76	56
Machinery and equipment[d]	13,260	13,787	21	21	24	41
Livestock and poultry[c]	76	1,012	—	2	—	3
Total	**55,190**	**33,947**	**86**	**53**	**100**	**100**
TWO TO THREE SECTION FARMS						
Land and buildings[c]	96,801	46,776	67	30	80	68
Machinery and equipment[d]	22,977	19,376	16	12	19	28
Livestock and poultry[c]	650	2,857	—	2	1	4
Total	**120,428**	**69,009**	**83**	**44**	**100**	**100**

[a] From an unpublished study of prairie grain farms by Gilchrist, V. Economics Division, Canada Department of Agriculture, 1954.
[b] Regina heavy clay soils represent high productivity and Weyburn loam the medium productivity soils in the wheat areas of Saskatchewan.
[c] Farm operator estimates of market value in 1954.
[d] Depreciated value.

There is a marked difference in the capital structure of farms on the two soil productivity levels. On the high productivity soils the investment in land and buildings varies between 76 and 80 per cent of the total investment (Table 1). On the lower productivity soils the proportion varies between

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[1] Kristjanson, Baldur H. *The Capital Structure of Canadian Agriculture.* The Economic Annalist, June 1957.

Table 2.—Cost of Major Items of New Machinery and Equipment, Specialized Grain Farms, Saskatchewan, December 1, 1955

One-section farms		Two-three section farms	
— Saskatchewan farm price —			
(1) Tractor (3-4 plow)	$ 3,093	(2) Tractors (4-5 plow [a])	$ 7,680
(1) Combine (self-propelled 14′)	5,735	(1) Combine (self-propelled 14′)	6,410[b]
(1) Truck (1-ton)	2,390	(2) Trucks (one 1-ton) (one 2-ton)	5,790
(1) Car	2,610	(1) Car	2,610
(1) Swather (16′)	1,029	(1) Swather (16′)	1,029
(1) Grain loader (24′)	350	(1) Grain loader (30′)	400
(1) Discer (12′) with packer	1,292	(1) Discer (16′) with packer	1,441
(1) Drag harrows (40′)	200	(1) One-way (8′) with packer	1,123
(1) Cultivator (12′) heavy duty	684	(1) Drag harrows (40′)	200
(1) Rod weeder (12′)	222	(1) Cultivator (15′) heavy duty	786
(1) Sprayer (40′ to 45′)	590	(1) Rod weeder (24′)	494
		(1) Sprayer (40′ to 45′)	590
Total	**$18,195**		**$28,553**

[a] Almost equally common were farms having one 3-4 plow tractor and one 4-5 plow tractor.
[b] Larger capacity than on one-section farms.

53 and 68 per cent. This difference between the two groups is accounted for by differences in real estate values rather than by differences in the other two components—machinery and livestock.

In contrast to the differences in real estate values on the two productivity levels is the similarity in investment in machinery on a per acre basis. Furthermore, an analysis of machinery and equipment inventories indicated a high degree of uniformity of types and sizes of machines within size groups. Table 2 shows the types and sizes of equipment most often found on one section and two to three section wheat farms. We have here the cost of this machinery and equipment if purchased now at prices in effect on December 1, 1955 in Saskatchewan. Not included are minor items such as electric motors, tools and welding equipment.

Investment in livestock and poultry is of no consequence on the high productivity soils whereas it reaches nearly $2,000 per farm on the medium productivity, two to three section units. Where livestock are kept in this wheat growing area it is associated with land which is not suitable for cereal grain production. There is virtually no cropland used for seeded pasture or tame hay.

Table 3.—Average Capital Investment on 320 and 480-Acre Mixed Farms, Manitoba, 1955 (Medium Productivity Soils)[a]

—	320 Acre Farms			480 Acre Farms		
	Dollars per farm	Dollars per acre	Per cent	Dollars per farm	Dollars per acre	Per cent
Land and buildings[b]	19,621	61	68	29,150	61	69
Machinery and equipment[c]	6,536	20	22	9,700	20	22
Livestock[b]	2,832	9	10	3,720	8	9
Total	**28,989**	**90**	**100**	**42,570**	**89**	**100**

[a] From unpublished data of Economics Division, Canada Department of Agriculture. The area is one of medium soil productivity in Pembina and Lorne municipalities.
[b] Farm operator estimates of market values in 1955.
[c] Depreciated values.

Mixed Farms.—Two types of mixed farms can be distinguished in the Prairie Region: (1) those farms whose income from cash crops exceeds that derived from livestock and livestock products (cash crop-livestock farms) and, (2) those whose income from livestock and livestock products exceeds that obtained from the sale of crops (livestock-cash crop farms). Investment data were obtained on cash crop-livestock farms in Manitoba and livestock-cash crop farms in Alberta.

Table 3 shows the average capital investment on a sample of two sizes of cash crop-livestock farms in Manitoba in 1954. The two sizes shown in this table are typical of this type of farming in Manitoba. Whether the amount of investment shown is typical cannot be determined but it is probable that the distribution of investment among the three types of capital is representative of the investment pattern.

In comparing the half-section farms (Manitoba) in Table 3 with half-section farms (Alberta) in Table 4, we find a striking similarity in both the amounts invested and the investment pattern.

Table 4.—Average Capital Investment on Two Sizes of Mixed Farms, Parkland Area, Alberta, 1954[a]

—	Soil Productivity [b]					
	High	Medium	High	Medium	High	Medium
	dollars per farm		dollars per acre		per cent	
QUARTER SECTION (160 ACRES)						
Land and buildings[c]	12,364	9,010	71	54	62	61
Machinery and equipment[d]	4,554	3,929	26	24	23	27
Livestock[c]	2,859	1,854	16	11	15	12
Total	**19,777**	**14,793**	**113**	**89**	**100**	**100**
HALF-SECTION FARMS (320 ACRES)						
Land and buildings[c]	20,393	17,830	63	54	69	69
Machinery and equipment[d]	6,178	5,825	19	18	21	22
Livestock[c]	3,046	2,218	9	7	10	9
Total	**29,617**	**25,873**	**91**	**79**	**100**	**100**

[a] From an unpublished study of farm organization in the Parkland areas of Alberta by H. K. Scott, Economics Division, Canada Department of Agriculture.

[b] The normal profile of black soils at Red Deer represents high productivity soils. The "blow-out" (solodized-solonetzic profile) soil area at Vegreville represents medium productivity soils.

[c] Farm operator estimates of market value in 1954.

[d] Depreciated values.

Compared with the Manitoba farms there was a larger proportionate income from livestock on the Alberta farms. This is not to be explained by the small difference in livestock investment. Rather it is due to a difference in land use between the two areas. The Manitoba farms reported an average of 11 acres in summerfallow in contrast to 90 acres on the Alberta farms. The total cropland acres per farm was almost identical for the two areas. This difference in land use accounts for the difference in type of farming.

The one-quarter section farms shown in Table 4 had an even higher proportion of their land in summerfallow. In addition they had a higher proportion of their total investment in livestock.

How representative are these data?—In each group of farms shown in these tables approximately 20 farm units are included.

The approach used for wheat farms are to select several areas in Saskatchewan which qualified as typical specialized grain growing areas. Preliminary information was obtained by visiting every farm in these areas and, on the basis of this information, the specialized grain farms were identified. To be included in the analysis the farms had to meet the following conditions:

(1) Only enough livestock for home use or to utilize the unimproved pasture.

(2) No abnormal amounts of custom work done for others or hired by the operator himself. This rules out abnormal machinery investment.

(3) No abnormal management or tenancy arrangements and the farm unit had to be a "fully-operating" going concern. In other words, semi-retired and beginning farm operators were excluded.

In the case of mixed grain farms in Manitoba an area was selected on the basis of Census information primarily. In contrast to the Saskatchewan study, however, no preliminary visits to the farms in the area were made. The procedure in the Alberta study was similar to that followed in Manitoba. Interviews were made at random within these areas.

While no known bias results from the procedures followed, it is equally true that the degree to which the interviews represent any particular universe is not known. In other words, the results do not meet the requirements of random sampling techniques.

The confidence which can be placed in the results obtained arises from the consistency of the results both in terms of absolute values and in terms of the investment pattern.

The above analysis dealing with individual types of farms covers only the Prairie Provinces. Further studies are being conducted which will allow extension of this analysis to other type of farming areas of Canada.

SALES TESTS WITH SELECTED LEAN SIDE BACON

L. E. Drayton

"Most consumers like their side bacon to be at least 30 per cent lean, and to have the lean and fat well distributed in the slice. Slices about six times as long as they are wide and which are straight and uniform in width are preferred".[1] These were some of the findings of a study of consumer preferences for bacon conducted in 1953-1954. They became the basis of specifications for Grade A Lean bacon which has now been offered on a trial basis in three cities.

During the latter half of 1955 the Live Stock and Live Stock Products Division, the Consumer Section, and the Economics Division collaborated in the development of plans for testing the saleability of bacon specially selected for leanness. Specifications of the standard for a top selection were set forth in accordance with the findings stated above. Graders were trained to select, under the conditions prevailing in the bacon slicing room of a packing plant, bacon which met this standard. Appropriate wrappers were designed and printed. Negotiations were conducted with packers and retailers concerning arrangements for production and sale of the new graded bacon.

In January 1956 the first sales test began in three supermarkets in Montreal. This test lasted until the end of June. A second test was started in Edmonton in November 1956 and a third one in Toronto in January 1957. These latter tests were both completed by the end of March 1957.

These three sales tests were made possible through the co-operation of two meat packing firms and three retail grocery chain store organizations. The assistance of these firms is much appreciated by those responsible for planning the sales tests.

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[1] Charlotte I. Johnston, *Consumers' Opinions of Side Bacon*, The Economic Annalist, October 1954. p. 115.

The Plan of the Tests.—The general plan of the sales tests was to simulate as far as practicable the conditions under which a new product would be introduced to consumers in normal retailing procedure. However, as the tests were limited to three stores of one firm in each city complete simulation was impracticable. A new product is likely to be advertised in the newspapers, in magazines, on the radio or on TV shortly after its introduction on the market. All such advertisement was avoided as there was no desire to draw added clientele to the stores selling the selected bacon.

Nevertheless, there was considerable in-store advertisement. Placards drawing attention to the Grade A Lean bacon were placed near it at the time of its introduction. These were removed after two weeks. Attractive dodgers printed in brown and white on red paper were distributed in the Montreal stores during the twelfth week of the sales test and from time to time subsequently. These dodgers were used to a smaller extent in Edmonton and Toronto as they caused considerable inconvenience for the retailer and appeared to have quite limited effects on the sale of Grade A Lean bacon.

On the other hand, demonstration of the Grade A Lean bacon provided a strong stimulus to sales. During the demonstration, which started at the middle of the thirteenth week in Montreal and at the beginning of the third week in the other two cities, one woman was stationed in each store for a week to talk to bacon buyers. It was her responsibility to draw the attention of customers to the Grade A Lean bacon and describe it without making any special effort to sell it. The demonstrators spoke to almost all those who bought side bacon in the stores concerned during the slacker periods of the week, but could not talk to a very large proportion of the customers during rush hours.

The graded bacon was allotted display space in the bacon counter alongside the regular brands carried by the retailers concerned. It was offered in the ½-pound package size only. Some of the competing brands were offered in two or three package sizes. As a result these brands enjoyed more display space. In any event the display space for various brands differed in the stores. Generally, the best selling brand had considerably more space than any other brand, especially on week ends. However, in relation to sales, the graded product had at least its fair share of display space during most weeks of the sales tests.

As side bacon is generally sold under brand names it was apparent that the brand name used would have considerable effect on sales. If it were well known and associated with quality in consumers' minds it would increase sales. Otherwise, it might reduce sales. In the end it was decided to use the grade designation "Canada Grade A Lean" as a brand name. By special arrangement with the Food and Drug Directorate, there was no identification of either the packer or the retailer on the package. However, printing on the package stated that the Department of Agriculture had selected the bacon for leanness. (Figure 1)

Since "Grade A Lean" bacon was supposed to be of superior quality respecting leanness its price was set higher than most competing brands. In each of the three cities this price was pegged to that of a specific brand as offered in the same stores in ½-pound packages. Except during the last three weeks of the sales test in Edmonton and Toronto, Grade A Lean bacon cost three cents per half pound more than this specified brand. During the last three weeks in Edmonton and Toronto the price was varied in an experiment on the effect of price changes.

Sales Experience.—The reception of Grade A Lean bacon in Montreal during the period before the demonstration, was rather poor. (Table 1). Sales varied considerably from week to week but Grade A Lean bacon usually had the lowest sales of any of the seven brands of side bacon offered. Observations of customer behavior and in-store interviewing revealed that shoppers were paying little attention to the Grade A Lean bacon. After several weeks had elapsed only 15 per cent of the customers had tried it, and many said they had not noticed it in the store. The data for the first two weeks of sales in Toronto indicate that a similar pattern might have developed there, had the demonstration been postponed. In Edmonton, on the other hand, Grade A Lean bacon got a good initial reception.

With the demonstration, the sales of Grade A Lean bacon increased greatly in each of the three cities. This revealed that large numbers of customers of all the stores concerned were willing to give Grade A Lean bacon a try, despite its relatively high price, when it was drawn to their attention. No record was kept of the number of bacon buyers that the demonstrators spoke to, but it was impossible for them to talk to all shoppers who bought bacon.

Table 1.—Sales of Grade A Lean Bacon and Relation to Sales of Other Specified Classes of Bacon, Various Periods, Montreal, Edmonton and Toronto, 1956-57

—	Unit	City		
		Montreal	Edmonton	Toronto
PERIOD BEFORE DEMONSTRATION				
Length of period	weeks	12	2	2
Proportion of total sliced side bacon, Grade A Lean	per cent of weight	5.9	9.5	5.3
Proportion of top quality side bacon, Grade A Lean	per cent of weight	[a]	21.7	12.9
Proportion of side bacon sold in half pound packages, Grade A Lean	per cent of weight	11.9	31.4	21.8
DEMONSTRATION				
Length of period	weeks	2	1	1
Proportion of total sliced side bacon, Grade A Lean	per cent of weight	14.2	33.0	17.8
Proportion of top quality side bacon, Grade A Lean	per cent of weight	[a]	57.7	39.2
Proportion of side bacon sold in half pound packages, Grade A Lean	per cent of weight	30.0	62.5	50.6
PERIOD AFTER DEMONSTRATION				
Length of period	weeks	10	17	9
Proportion of total sliced side bacon, Grade A Lean	per cent of weight	9.5	16.2	7.4
Proportion of top quality side bacon, Grade A Lean	per cent of weight	[a]	36.0	17.4
Proportion of side bacon sold in half pound packages, Grade A Lean	per cent of weight	20.7	35.9	26.2

[a] In Montreal all brands offered by the retailer concerned, with the possible exception of one rind-on brand, were of the highest quality packed by the packer concerned, so this distinction was not made.

It is probable that they reached fewer than half of such customers. Had all bacon buyers been contacted, sales of Grade A Lean would have been substantially higher during the demonstration period.

In the period after the demonstration, sales of Grade A Lean bacon stabilized at about 16 per cent of all side bacon in Edmonton for the stores concerned. Corresponding percentages for Montreal and Toronto were 9.5 and 7.4 per cent, respectively. In all three cities the retailer carried at least one other top brand that did not sell in as great a volume as Grade A Lean after the demonstration.

Table 2.—Prices of Grade A Lean Bacon as Compared with Prices of All Other Brands of Sliced Side Bacon, Three Stores, Montreal, 1956

Week Ending	Price of bacon			Proportion Grade A Lean of side bacon
	Grade A Lean Bacon	All other brands of [a] side bacon	Lowest priced brand	
	— cents per pound —			— per cent —
January 21	74	56	49	6.32
January 28	72	59	49	8.74
February 4	72	60	53	6.49
February 11[b]	72	59	49	3.34
February 18[b]	70	55	49	5.69
February 25[b]	70	56	49	5.98
March 3[b]	70	56	49	5.47
March 10[b]	70	54	49	5.25
March 17	70	53	43	5.25
March 24[b]	70	56	43	6.32
March 31[b]	70	55	49	4.34
April 7[b c]	68	56	49	7.62
April 14[c]	68	54	49	16.86
April 21[b c]	68	53	49	11.74
April 28[b]	68	55	49	9.58
May 5	68	55	49	9.61
May 12	68	56	49	11.78
May 19	68	55	49	7.40
May 26	70	57	49	9.87
June 2[b]	70	58	51	9.90
June 9	72	60	45	9.80
June 16	72	60	45	11.88
June 23	72	60	53	7.15
June 30	76	62	53	9.01

[a] Weighted price is obtained by dividing total retail value of other brands of side bacon sold by their total poundage sold.
[b] Sales of Grade A Lean bacon appear to have been affected by short stocks.
[c] Sales of Grade A Lean bacon were increased by in-store publicity.

In Edmonton and Toronto the competing sliced side bacon offered tended to fall into two price categories. The upper price category included the various top proprietary brands. The manufacture of most of these brands offer a second line of sliced side bacon which is normally considerably lower priced. As a number of these brands were also offered in the same stores, it was desirable to examine how sales of Grade A Lean compared with those of other higher priced brands.

Actually these higher priced brands accounted for less than half the sliced side bacon sales of the stores concerned. Grade A Lean bacon accounted for 36 per cent in Edmonton and 17 per cent in Toronto of the higher priced bacon sold.

Most of the bacon was sold in pound and 1½-pound packages. Thus, Grade A Lean bacon accounted for a very substantial proportion of the sales in ½-pound packages. Indeed in Edmonton no other brand equalled its sales in this package size. In Toronto, sales of ½-pound packages for one competing brand exceeded those of Grade A Lean by a small margin. A second competing brand fell behind Grade A Lean by a similar margin. In Montreal, during the last few weeks of the test, Grade A Lean usually ranked third among four brands in sales in half-pound package units.

Competition from other Brands.—The sales data presented above cannot be fully evaluated without some knowledge of the competitive position. As has been noted a premium of six cents a pound was charged for Grade A Lean bacon. This premium was over the price of a specified brand of competing bacon offered in ½-pound units. Variations in the prices of other brands were not taken into consideration in setting the price of Grade A Lean bacon.

In Montreal, the specified brand proved to be consistently the highest priced competing brand in the stores concerned. Moreover, there was a wide range in the prices of the competing brands even though each, with the possible exception of one rind-on brand, was in the top quality class for the firm packing it.

The price difference between Grade A Lean bacon and the lowest-priced competing brand of side bacon varied between 19 and 27 cents per pound (Table 2). In some weeks the lowest priced brand had the rind on but in many weeks one or more rindless brands were at the minimum level. In many weeks the lowest-priced rindless brand was featured in newspaper advertisements and by mass displays in the stores. Consequently, sales of the brand

Table 3.—Prices of Grade A Lean Bacon as Compared with Prices of Other Brands of Sliced Side Bacon, Edmonton, 1956-57

Week ending	Price of bacon			Proportion Grade Lean of	
	Grade A Lean	Other top quality brands [a]	Second quality brands[a]	Top quality brands	All sliced side bacon
	— cents per pound —			— per cent —	
November 17	96	86.6	67.1	22.3	9.0
November 24	92	86.4	73.1	21.0	10.2
December 1[b c]	92	86.3	72.0	57.7	33.0
December 8	92	86.9	71.0	37.8	19.1
December 15[c]	94	88.6	69.6	40.3	18.7
December 22	94	88.1	71.9	36.3	18.6
December 29[c]	94	86.9	72.9	25.3	10.5
January 5	94	85.4	73.0	32.2	16.3
January 12	94	85.7	70.4	34.5	15.3
January 19	94	86.7	67.6	37.5	17.0
January 26	94	86.8	67.3	24.4	10.3
February 2	94	87.1	67.6	39.8	15.1
February 9	94	87.1	73.4	32.3	15.8
February 16	94	88.3	66.8	33.6	13.1
February 23	96	88.9	72.9	33.9	17.3
March 2	96	89.0	74.1	38.2	18.3
March 9	96	90.1	70.0	43.2	16.6
March 16	92	85.8	70.2	39.0	17.3
March 23	91	85.6	72.9	39.9	19.9
March 30	92	85.8	68.9	39.1	15.4

[a] Price is determined by dividing total value of sales by pounds sold.
[b] Demonstration of Grade A Lean bacon.
[c] Short stocks appear to have affected sales of Grade A Lean bacon.

of bacon thus featured were usually much larger than those of any other brand. The average price realized per pound of side bacon other than Grade A Lean sold was 13 to 18 cents below the price of Grade A Lean bacon.

In Edmonton, the "top quality" brands averaged in most weeks a little more than six cents per pound below the price of Grade A Lean bacon. The main cause of the excess over six cents was the somewhat lower price of bacon sold in pound packages (Table 3). On the other hand, there were weeks when the price of at least one competing brand was less than six cents per pound under Grade A Lean.

Grade A Lean bacon sales compared very favourably with those of the competing top quality brands at this premium. Frequently, they were in excess of those of any one of these competing brands and in most weeks amounted to 30 to 40 per cent of the total of the four brands in this group.

The second quality brands were priced much lower than the top quality brands. As a result, their price ranged from 18 to 29 cents per pound below that of Grade A Lean bacon. Much of the bacon in these brands was sold in 1½-pound packages. Moreover, one of the brands in this class was frequently featured by the retailer concerned as a special. In almost all weeks sales of these brands exceeded the total sales of Grade A Lean and other top quality brands.

The price situation in Toronto was quite similar to that in Edmonton except that the general level of bacon prices tended to be higher (Table 4).

Table 4.—Prices of Grade A Lean Bacon as Compared with Prices of Other Brands of Sliced Bacon, Toronto, 1957

Week ending	Price of bacon			Proportion Grade A Lean of	
	Grade A Lean	Other top quality brands[a]	Second quality brands[a]	Top quality brands	All sliced side bacon
	— cents per pound —			— per cent —	
January 12	104	96.2	69.6	15.3	6.1
January 19	104	96.9	69.8	10.8	4.5
January 26[b]	102	97.3	69.1	39.2	17.8
February 2	104	97.2	69.5	20.9	7.9
February 9	104	97.3	69.8	20.8	8.7
February 16	106	98.5	79.2	17.5	7.4
February 23[c]	106	98.5	81.4	13.6	6.3
March 2[c]	104	97.3	79.7	11.8	4.8
March 9[c]	104	96.4	74.0	15.3	6.6
March 16	104.5	96.4	79.3	20.3	8.8
March 23	103.3	96.5	79.6	21.1	9.6
March 30	103.3	95.5	74.3	15.7	6.4

[a] Price is determined by dividing total value of sales by pounds sold.
[b] Demonstration of Grade A Lean bacon.
[c] Appears probable that stock shortages reduced sales these weeks.

One of the top quality brands offered sold at about the same price as Grade A Lean. In some weeks this brand was priced below Grade A Lean but in other weeks it was priced above Grade A Lean. However, the discount on pound packages was larger in Toronto than in Edmonton with the result that a larger proportion of the top quality bacon was sold in pound packages. Consequently, the spread between Grade A Lean and the average price realized for competing top quality bacon was about eight cents per pound in most weeks.

As in Edmonton bacon of the second quality was priced considerably lower than that of the top quality. One of the second quality brands was offered in ½-pound packages but the bulk of its sales was in the pound package.

Table 5.—Pattern of Prices for Grade A Lean Bacon During the Period March 10 to 30, 1957, Edmonton and Toronto

Week ending	Store A	Store B	Store C
	Difference in price between Grade A Lean bacon and Base Brand		
	— cents per 1/2 pound —		
March 16	0	3	6
March 23	3	6	0
March 30	6	0	3

There was no bacon sold in 1½-pound packages. Bacon of this class was featured on several occasions as a special during the sales test period. The price spread between Grade A Lean and bacon of the second quality averaged greater than in Edmonton and ranged from 24 to 35 cents per pound.

Effect of Changing Price of Grade A Lean.—During most of the sales test in all three cities the price of Grade A Lean bacon was three cents per ½-pound above that of the selected base brand. However, during the last three weeks of the sales tests in Edmonton and Toronto the price of Grade A Lean bacon was varied according to the pattern indicated in Table 5. No publicity was given to these price changes beyond the usual price indications appearing in the stores. These consisted of a price mark on each package and a price card above the display.

Every effort was made to minimize the effect of extraneous factors. The position of Grade A Lean bacon in the display was constant throughout the price experiment. Stocks of both Grade A Lean bacon and of competing brands were well maintained.

Nevertheless, it was impracticable to eliminate all such effects. One competing brand was featured in both cities during one week of the price experiment. This appeared to distort the results somewhat. Moreover, throughout the sales test the sales of Grade A Lean bacon, and for that matter of other brands of bacon, had fluctuated considerably in each of the stores. Reasons for these fluctuations, which continued throughout the price experiment, have not been fully determined.

The results of the price experiment proved inconclusive (Table 6).

Table 6.—Sales of Grade A Lean Bacon as a Percentage of Sales of Top Quality Bacon as Related to Price Changes, Edmonton and Toronto, March 1957

City and store	Excess of price of Grade A Lean bacon over base brand			Average from January 28 to March 9[a]
	None	3 cents per 1/2-pound	6 cents per 1/2-pound	
	— per cent of sales of top-quality brands —			
EDMONTON				
Store A	35.9	40.8	28.2	29.8
Store B	65.4	61.4	41.8	44.9
Store C	38.1	36.1	32.8	38.8
All three[a]	42.8	42.5	32.8	36.7
TORONTO				
Store A	22.3	20.7	12.7	14.4
Store B	13.5	19.6	19.4	17.9
Store C	22.8	20.3	19.8	16.9
All three[a]	19.2	20.0	17.8	16.7
Both cities[a]	28.8	28.4	24.0	24.2

[a] All averages and aggregates are based on total pounds sold and consequently are not averages of percentages in the table.

Increasing the premium on Grade A Lean bacon from three cents to six cents per ½-pound appeared to cut sales by about 20 per cent, i.e., from 28.4 to 24.0 per cent of the sales of all top-quality brands. This particular price change occurred in each one of the six stores and was associated with a substantial reduction in sales of Grade A Lean bacon in five of them.

Nevertheless, a word of caution is necessary. The variability in weekly sales of Grade A Lean bacon was such that the reductions noted could have occurred by chance. Indeed sales of Grade A Lean bacon at the six-cent premium constituted the same share of top-quality brands for the six stores taken together as they did during the six weeks immediately before the price experiment.

Reducing the price of Grade A Lean bacon to the same price as the base brand had no apparent effect on sales. In the two stores where this price reduction was made in the first week of the experiment sales of Grade A Lean bacon increased by a total of 109 packages. However, in two other stores with no price change sales increased by 238 packages. In four stores the price was reduced from a premium of six cents to none. In three of these stores sales increased quite sharply but in one they declined by 50 packages. Total sales in the six stores at this price differed slightly from those at a three-cent premium, although they were considerably higher than during the pre-experiment period.

It should be recognized that the conclusions drawn are based on immediate responses only. Long-term responses are likely to prove quite different. It is unlikely that many shoppers who had not previously been buying Grade A Lean bacon noted the price changes. Had they been publicized a sharper response would have probably occurred, especially to the price reductions. The price increases were undoubtedly more effectively observed than the price reductions as a customer who intends to buy a given product when she enters a store is more likely to notice its price than one who does not. In this connection there may have been a carry-over effect when the price was reduced from a six-cent premium to none.

Conclusions.—These sales tests appear to justify two general conclusions, namely:

1. If graded bacon is introduced on the market in competition with established brands considerable publicity will be required to draw it to the attention of the public.
2. Once the public becomes conscious of its existence considerable quantities will be saleable at a significant premium over the price of established brands.

These conclusions were strengthened by customer observations and questionnaires completed during the test. Data from these sources will be reported in a subsequent article.

CHANGES IN APPLE VARIETIES IN NOVA SCOTIA

G. C. Retson

An important aspect of the apple industry in Nova Scotia is the wide number of varieties grown. In other provinces the three leading varieties account for over 60 per cent of all apple trees; the McIntosh variety is by far the most popular, accounting for over half the trees in the commercial orchards of some areas. In Nova Scotia no single variety occupies as much as 15 per cent of total acreage in apple trees.

The report of the Nova Scotia Apple Marketing Board for 1939-40 lists some 214 varieties of apples handled during that season. This large number of varieties reflects the influence of many factors. The most important factor, however, was probably the size and type of overseas markets which, before the last World War, absorbed up to 80 per cent of the crop. Changes in demand on those markets, during the war and postwar period, have led to an active grafting program and to the removal of about one million trees from Nova Scotia orchards. These two programs—tree removal and tree grafting—have considerably altered the picture. The extent and nature of the changes are indicated in census data on tree fruits and other studies conducted in recent years.

Census data on tree fruits are available for 1939 and 1949; they were supplied for orchards of two or more acres and for smaller holdings operated on a commercial basis. Additional data on changes in varieties are contained in a study conducted in 1954 by the Horticultural Division of the Nova Scotia Department of Agriculture and Marketing. This study was based on a random sample of 120 records drawn from orchards enumerated in the 1949 tree fruit census. More detailed information is contained in a study conducted in 1956 by the Economics Division of the Canada Department of Agriculture. This study includes data from 100 farms having five acres or more in orchard. Census and study data are not fully comparable but they provide a reliable indication of variety trends in recent years.

Varieties listed in Table 1 include the names of those standing among the top ten in any of the crop years for which census or study data are available. A major development during the 16-year period is the sharp increase in McIntosh, Delicious, and Cortland varieties and the corresponding decline in Stark, Ben Davis and Baldwin varieties. This development reflects the changeover from varieties formerly shipped overseas to those favoured by domestic markets. The 1954 and 1955 studies indicate some variation in the relative position of a few varieties, notably McIntosh, Delicious and Wagner. Orchards studied in 1955 averaged 912 trees, which was nearly double the size of those in the 1954 study. The 1955 data are thus probably somewhat more closely associated with developments taking place in the larger commercial orchards. These orchards place greater emphasis on the six so-called preferred varieties. Five of these varieties, the McIntosh, Delicious, Gravenstein, Spy and Cortland, are included in Table 1. The other preferred variety, Red Rome Beauty,

Table 1.—Leading Apple Varieties in Nova Scotia, 1939-55

Variety	Tree Fruit Census, 1939	Tree Fruit Census, 1949	Horticulture Division Study, 1954	Economics Division Study, 1955–56
	— per cent of total trees —			
McIntosh	3.5	9.3	10.9	13.9
Delicious	2.5	6.7	9.7	12.5
Wagner	9.6	11.4	12.4	11.8
Gravenstein	7.0	8.4	10.0	10.8
Spy	5.8	7.3	9.3	9.3
Cortland	1.4	3.2	6.6	6.7
Golden Russet	8.4	7.2	6.3	5.8
Gano	4.1	4.7	4.4	5.1
King	5.8	4.8	5.7	4.6
Baldwin	8.8	6.1	4.3	4.5
Ben Davis	8.5	6.3	4.4	3.3
Stark	11.6	8.5	4.3	2.7
Ribston	3.7	3.2	2.4	2.0
Other	19.3	12.9	9.3	7.0
Per cent top 10 varieties of total trees	73.2	76.2	79.6	84.9

SOURCE:—*Census of Apple Orchards in Nova Scotia*, Department of Agriculture and Marketing, Bulletins Nos. 4 and 1011. *Sample Census of Apple Orchards in the Annapolis Valley*, Annual Report, Nova Scotia Fruit Growers Association, 1955.

although less important, advanced from 18th place in 1939 to 13th place in 1955. Also of major significance is the decline in other varieties and the increase in the top ten varieties as a percentage of the total number of trees.

Table 1 was prepared to illustrate the changes which have taken place in the 1939-55 period. Analysis by age groups provides an indication of current trends. Plantings in the last ten years have been largely confined to five varieties with Delicious in first place, followed by McIntosh, Cortland, Gravenstein, and Spy. Some Wagner and Red Rome Beauty are included but plantings of these varieties appear to be declining. The general decline in overseas varieties is by no means uniform. Varieties such as Wagner, Gano, Golden Russet, King, and Ribston, have been maintained to a much greater extent than Stark, Baldwin, and Ben Davis. Other new plantings were confined almost entirely to McIntosh type apples and summer varieties.

Growers were asked to provide data on variety preference and future production plans. These indicate a further reduction in Stark, Ben Davis, and Baldwin. It would seem that the upward trend in Delicious may be continued as over half the growers listed it as their first or second choice from the point of view of profitability. McIntosh and Gravenstein were both given high ratings in terms of profitability but they show a slight decline in numbers in the 1 to 5-year group. This decline may not be too significant but it probably reflects the suggestion made by some growers that orchardists would run some risk if they overplanted these varieties in Nova Scotia. Favourite eating apple was Gravenstein which was the first choice of 60 of the 100 growers.

Table 2.—Distribution of Apple Varieties by Age Groups, 100 Orchards, in Nova Scotia, 1955-56

Variety	1–5	6–10	11–20	21–40	Over 40 Years
	— per cent of total trees —				
McIntosh	17.4	21.7	21.2	10.9	4.4
Delicious	29.4	26.7	17.0	8.4	3.5
Wagner	3.3	5.0	14.5	13.4	7.4
Gravenstein	16.3	18.2	10.4	10.3	7.0
Spy	7.9	7.6	5.6	11.8	9.1
Cortland	17.4	13.5	11.4	3.1	2.6
Golden Russet	0.1	0.6	4.5	7.3	7.9
Gano	—	—	2.2	7.9	5.1
King	—	0.4	1.0	6.6	8.2
Baldwin	—	—	0.1	6.5	9.6
Ben Davis	—	—	0.1	4.2	9.6
Stark	—	—	—	2.5	11.8
Ribston	—	—	2.3	1.4	6.1
Red Rome	2.9	3.1	4.6	1.6	0.7
Other	5.4	2.9	5.0	4.0	7.2

The sharp increase in Cortland in recent years is in part attributed to its rating as a dual purpose apple suitable for both processing and fresh fruit trade. Some growers planned a further expansion in the number of trees of this variety. In recent months, however, some question has been raised as to the suitability of Cortland for processing and this may influence future plantings. Demand by processors has probably played some part in the increase in Spy in recent years. It has also encouraged the retention of varieties, such as Ribston which has good processing quality. On the other hand it has been a factor in the decline of varieties, such as Stark, which can only be used to a limited extent for this purpose.

In the over-all picture, one may foresee that the prewar program which emphasized the growing of culinary varieties for export may be largely replaced by a program of processed apple production. The major problem at the moment is that of determining the variety or varieties best adapted to processing in Nova Scotia. With many trees now in the over-age category, a shortage of supplies can be expected in the next few years. Growers display considerable interest but expansion will probably be limited until more specific variety recommendations become available.

Another development to be noted is the emphasis on summer varieties in new plantings. This is associated, to some extent, with the substantial increase in marketing through roadside stands in recent years. A few growers noted that returns from these varieties have been relatively good. An added advantage is the extension in the picking season which tends to lighten peak labor requirements. The potential market for summer varieties is probably rather limited, but growers are planning some further expansion.

In an area where apples have been grown for some 300 years, most trees are old and land values low and varieties tend to remain in production though not well adapted to current market demands. An apple tree represents a rather heavy, long time investment and this tends to restrict change, particularly in periods of low returns and uncertainty over future prospects. Hopes of regaining former markets and attachment to varieties highly profitable in previous years also tend to restrict elimination of those currently rated as undesirable. Despite these and similar factors, it is likely that the trend toward fewer varieties will continue.

With apples paid for and sold on a multiple grade and size basis, a large number of operations are involved in grading, packing, storing, and moving the crop to market. Analysis of costs and returns and the bookkeeping and clerical work involved in maintaining the necessary records is an expensive and time consuming operation. The effect of a large number of varieties is that of duplicating many of these operations and further increasing marketing costs. To the grower who is mainly concerned with production aspects, the presence of a large number of varieties may not appear to add substantially to total costs. If he is to compete successfully with other producing areas, however, it would seem that further standardization of production is desirable.

CANADA'S POPULATION

The population of Canada totaled 16,589,000, on June 1, 1957, an increase of 508,000 from the 1956 census total of 16,081,000 according to recent estimates released by the Dominion Bureau of Statistics. This was the largest annual numerical increase in Canada's history; for the five years, 1951 to 1956, the average increase was 414,000.

The principal factor in the record increase from June 1, 1956 to June 1, 1957 was the sharp increase in immigration to Canada since June 1, 1956. The total number of immigrants in the 12-month period was about 250,000 compared with the peak year's figure of 194,000 in the years from 1951 to 1956.

Ontario had the largest numerical gain in population of all provinces, an increase of 217,000 from 5,405,000 to 5,622,000. Quebec was second with a rise of 130,000 from 4,628,000 to 4,758,000. British Columbia was next in numerical gain but had the largest proportional rise with an increase of 89,000 —6.3 per cent— from 1,399,000 to 1,487,000. Alberta followed with an increase of 37,000, from 1,123,000 to 1,160,000. Saskatchewan recorded a slight decrease, from 881,000 to 879,000. The population of Prince Edward Island remained unchanged at 99,000.

Population estimates for other provinces with figures for June 1, 1956 in brackets, were as follows: Newfoundland 426,000 (415,000); Nova Scotia, 702,000 (695,000); New Brunswick, 565,000 (555,000); Manitoba, 860,000 (850,000). The population of the Yukon and Northwest Territories remained unchanged at 12,000 and 19,000 respectively.

PUBLICATIONS OF THE ECONOMICS DIVISION

Air Photo Interpretations of Land Use in the Central Interior of British Columbia, 1945 to 1955. Philpotts, L. E. Ottawa, June 1957. pp. 6—figs., photos and tables.

A report concerned with methods of interpreting air photos and the use of these photos to measure acreages, improved and cultivated, in the central interior plateau of British Columbia.

Dairy Farm Study on Vancouver Island, 1954-1955. Carson, J. G. Ottawa, June 1957. pp. 30.

A study "designed to provide data on current conditions and to determine factors affecting the earnings of dairy farmers". The author describes the investment patterns, the equipment and livestock components, the use of the land and of labour and ends his report with a financial analysis of the farm business.

Current Agricultural Assistance Programs, Canada Department of Agriculture, June 1957. Cameron, Marjorie R. Ottawa, July 1957. pp. 11 + 42.

A handbook outlining the various programs under which the federal Department of Agriculture extends direct financial assistance to farmers and their organizations. It consolidates and brings up to date the information presented in the bulletin on "Federal Agricultural Assistance Programs, Canada 1945-1956".

Dairy Farm Organization in the Lower Fraser Valley of British Columbia. Campbell, R.H. Ottawa, June 1957.

The dairy farmers of the Lower Fraser Valley of British Columbia must adjust the organization and operation of their farms to meet the increasing competition for labor from the expansion in industrial activities in the Vancouver area. These adjustments, designed to yield a greater output with currently available labor, will take the form of better production practices and more labor-saving machinery and equipment.

The present study supplies an analysis of the organization, receipts, expenses, and physical inputs and outputs of a group of dairy farms; it shows the significant differences in organization between high and low income farms. The main questions under review are dealt with under the following section headings: *Farm Capital; Land Use; Crop Yields; Use of Commercial Fertilizer and Lime; Machinery and Equipment; The Dairy Herd; Milk Production and Price; Feed for the Dairy Herd and Labor; Values and Annual Cost of Dairy Buildings.*

Review of Canadian Agricultural Price and Marketing Agreements. Dunbabin, Margaret I. Ottawa, July 1957. pp. 10.

An outline of the functions and operations of different marketing and price arrangements and of the interrelationships among some of these arrangements.

Canada Trade in Agricultural Products with the United Kingdom, the United States and all Countries, 1955 and 1956. Ottawa. July 1957. pp. 22.

This publication consists of seven tables of Canadian agricultural trade statistics, arranged by commodities and grouped according to the classification used by the Economics Division.

Atlantic Provinces Agriculture. Reid, E. P. and J. M. Fitzpatrick. Ottawa. August 1957. pp. iii + 42.

A publication prepared at the request of the Atlantic Provinces Economic Council. Part I studies the *Production Aspects:* types of farming, land use and production possibilities. Part II reviews the *Marketing Aspects:* net rail movements of agricultural products to the Maritime Provinces, farm production in relation to requirements, price relationships of Maritime produce, and the fruit and vegetable processing industry.

Co-operation in Canada, 1956. Kristjanson, B. H. Ottawa, June 1957.

The twenty-fifth annual summary of statistics on co-operatives in Canada.

OTHER PUBLICATIONS

Proceedings of the Ninth International Conference of Agricultural Economists, held at Teekkarikyla, Otaniemi, Finland, 19-26 August 1955. London, New York and Toronto, Oxford University Press, 1956. pp. xiii+571.

The theme of the Ninth International Conference of Agricultural Economists was: *The Implications of Technical Change in Agriculture.* The *Proceedings* include 26 papers by agricultural economists from 15 different countries and one by the Director-General of the Food and Agriculture Organization of the United Nations. They also include the comments made during the discussions which followed the presentation of each paper before the Conference.

The opening papers dealt with *The Meaning of Technical Change in the Context of the Agricultural Economy of Different Environments*—Scandinavia, France, South-Eastern Europe, Asia, Latin America and Northern America. Seventeen economists discussed these papers. Their comments and the viewpoints expressed in the papers are adequately reviewed and analysed in the remarks made by Dr. S. Sinclair of the University of Manitoba, one of the participants in the discussion. Dr. Sinclair said that attention should be given not so much to technical change itself as to the means of furthering technical advance, as part of economic development. Education is a most important feature of the whole issue, technical development depending greatly on the desire of people to advance. Special thought should be given to the nature of education for agricultural people. Technical changes in farming mean that farmers must acquire progressively greater skills. Planners and educators must therefore prepare the farm people for a higher standard of living and for the skills that must be developed to achieve that standard.

These papers were followed by two others, of general import to agriculture, one on *The Sociological and Cultural Problems Associated with Technical Change in Agriculture* and the other on *The Relative Incidence on Agriculturists and Other Groups of the Benefits Resulting from Technical Change in Agriculture.*

The Interaction between Technical Change on the Farm and Technical Change in Marketing and Distribution was studied from the standpoint of *Farm Crops, Milk,* and *Livestock.* D. A. Bruce Marshall of the Canadian Foreign Trade Service, Canada House, London presented the paper on the interaction aspects in their relation to the *Livestock* industry. After a review of the two main types of change—organizational and structural changes, and scientific technical developments he came to the conclusion that "the relationship between changes in production and changes in distribution and marketing of livestock are generally not of a technical nature and that the implication contained in the title" of the paper was "invalid". Mr. Marshall agreed, for example, that the changes in transportation have been far reaching but doubted that any of these changes has had "any direct responsibility for technical changes in methods of production". He went on to say that

> at the point where livestock differs most from grain and milk a situation has developed, in North America at least, where the livestock

> processor or packer will clear the market at all times and will, at a price, take everything the producer wants to sell, regardless of type, weight, or quality or whether the processor wants or needs it or not. This, I believe, is one of the main reasons why there is no direct connexion between technical changes in production and technical changes in distribution and marketing of livestock.

Mr. Marshall sees an exception, however, in the marketing and production of poultry in North America, especially in the development of the broiler industry. With the new marketing and distribution techniques, the packing plants search for poultry and contracts are made directly between retailers and producers. Poultry farmers must increase production and new methods must be devised to meet the growing demand. But, this does not weaken Mr. Marshall's thesis that

> Generally speaking then, technical changes on the farm, in North America at least, are directed solely at increased returns. They fit into the existing market structure rather than create corresponding technical changes in marketing.

Dr. William G. Murray of the Iowa State College, U.S.A. presented the next paper, dealing with *The Finance of the Additional Capital Required for Technical Change.*

Dr. J. F. Booth, Chief, Economics Division, Canada Department of Agriculture made a detailed analysis of *The Influence of Consumption Changes on the Use of Resources and on Technical Change in Agriculture.* He reviewed the *Changes in Consumption* in relation to production under the following headings: *Global Shifts in Land Use; Resource Adjustments in Particular Products; The Effect of Urbanization and Population Density; Resource and Technological Change in Existing Production Patterns;* and *The Measurement of Change.* Dr. Booth remarked that available statistical information on consumption trends in various countries of the western world suggests a long-run shift from the plentiful and cheap starchy foods, such as cereals and potatoes, to the scarcer and more expensive high protein and protective foods. The changes in consumption habits have been accompanied by changes in land use. Changes in population density have also had an important effect on consumption trends.

The next six papers dealt with: *The Impact of Technical Change on the Employment Situation within Agriculture and on the Occupational Structure of the Population; The Interdependence of Agriculture and Forestry; The Impact of Technical Changes on Woodland Management; The Adequacy, from the Point of View of Technical Development, of Contemporary Institutional Systems; The Scientific Foundations of the Planning of Agriculture in the U.S.S.R.;* and *The Study of the Economics and Organization of Agriculture in the U.S.S.R.*

Mr. P. V. Cardon, Director-General of the Food and Agriculture Organization of the United Nations gave a descriptive account of *The Activities of Governmental and Other Agencies in Encouraging Technical Development,* with special emphasis on the work program of F.A.O. Dr. Eric Englund of the Foreign Agricultural Service, United States Department of Agriculture, discussed the theoretical aspects and the economic impact of *The Interaction between Technical Changes in Agriculture and the Pattern of International Trade.* In his consideration of prospects and hopes for the future Dr. Englund sounded a note of optimism. He said:

> "The dynamics of technology may be contributing more than we realize toward a greater awareness of our interdependence, out of which is gradually emerging, I believe, a stronger determination to

> devise realistic means of improving international economic relations and to create a more favourable climate for their growth."

Dr. T. W. Schultz of the University of Chicago contributed a paper of especial interest to professional economists. He spoke of *The Contribution of the Economist to Programmes of Technical Development.* He deplored the lack of headway made by economists in the analysis of the production and income implications of changes in technology. In analyses of changes in output per unit of input too much has been ascribed to change in technology in estimates of the rise in production and income.

Dr. Schultz had some very pertinent remarks to make concerning the confusion in many economists' minds, resulting from the substitution of capital for labor. He said:

> Still another reason why so little is known about the economic characteristics of technological changes has been the confusion caused by the substitution of capital for labor. The rise in output per worker has frequently been taken as an indication of an improvement in technology. While it is exceedingly difficult to untangle the substitution effects of changes in the relative prices of inputs—from the increases in output per unit of input caused by new techniques of production, only confusion can come from lumping the two in the belief that what one has is mainly or entirely the technological variable.

Turning to the contributions that economists may be expected to make in programs of technical development, Schultz regarded as the first priority "the understanding of the role of technology as an agent of production". He discussed a program of research work under the following headings: *Working with Large Aggregates; Working with the Development of a Particular Production Technique;* and *The Role of Programmes of Technical Development.*

Colin Clark read a paper on *The Relation between the Pace of Technical Change in Farming and the Level of Agricultural Prosperity* and Dr. K. L. Robinson of Cornell University, in the last paper presented at the Conference, reviewed the *Political Obstacles Tending to Retard the Increased Economic Welfare offered by Technical Change in Agriculture.*

The Proceedings will familiarize the reader with the thoughts of agricultural economists of long experience and high prestige in administrative or academic circles on a subject which is the paramount concern of all those interested in the economic welfare and development of agriculture.

The Structural Interdependence of the Economy. Proceedings of an International Conference on Input-Output Analysis held at Varenna, Italy, 27 June to 10 July 1954. Barna, Tibor, Ed. John Wiley & Sons, Inc. New York. 1956. pp. viii + 429.

The contents of this book were originally presented as papers at an international conference on input-output analysis held at Varenna, Italy under the auspices of the Faculty of Economics of the University of Pisa. This was the second international conference on input-output analysis, the first one having been held at Driebergen in September 1950 under the auspices of the Netherlands Economic Institute.

The 21 chapters contained in this volume deal with the analysis of economic structural interdependence primarily from the standpoint of national economies and also from the standpoint of particular industries or business organizations. The editor has skillfully organized the material into four main parts. Part One is concerned with *Methods of Analysis.* In the introductory chapter Tibor Barna, the editor and a member of the United Nations Economic Commission for Europe, discusses the main aspects of the analysis of structural interdependence, reviews some of the methods of studying the interdependence of quantitative economic relations—input-output, linear programming and process analysis—and offers some comments on the applications of interdependence analysis. Other chapters deal with *Input-output analysis and the general equilibrium theory; Input-output combinations; Dynamic programming;* and *Industry-wide, multi-industry and economy-wide process analysis.*

Parts Two and Three deal with the *Social Accounting Aspects* and Part Three with some *National Experiences.*

Part Four describes *Special Applications* of great interest to any economist, as may be seen from the following chapter headings: *Inter-regional and international input-output analysis; On changes in inter-sectoral terms of trade; Application of interindustry analysis to problems of economic development; Consumption and input-output analysis;* and *Linear expenditure systems and demand analysis: An application to the pattern of British demand.*

There are different schools of thought represented in this volume. All schools, however, attempt to devise models that may be translated into empirical terms, exploring the mathematical properties of the models and developing computational techniques capable of practical applications.

The subject matter of the Proceedings belongs largely to the economics of production. The volume itself may thus be of particular interest to production economists but it should also be perused by all economists avid of adding to their box of analytical tools a method which greatly facilitates the solutions to some of the complex problems of our modern economy.

Immigrants and their Children, 1850-1950. Hutchinson, E. P. John Wiley & Sons, Inc., New York and Chapman and Hall, Limited, London. 1956. pp. xiv + 391.

A census monograph prepared "for the Social Science Research Council in co-operation with the U.S. Department of Commerce, Bureau of the Census". It summarizes a full century of census information on the foreign-born population of the United States.

The foreign-born population numbered about 2.25 million in 1850 and increased with the rising tide of immigration till it reached a maximum of 14 million in 1930. Numbers then followed a downward trend, being affected by restrictive immigration policies, the economic depression of the thirties, World War II, and the aging of the population with its consequent higher mortality rate. By 1950 it had declined to ten million, the lowest figure in half a century, and had been reduced to only 6.9 of the total population—the smallest proportion in a hundred years.

Data on country of origin show a decline, after 1920, in the proportion of northwestern, central and eastern Europeans among the U.S. foreign-born and an increase in that of southern Europeans and natives of the western hemisphere (including Canadians other than French Canadians).

In 1920 the foreign-born and their children were concentrated mostly in urban areas and in the northeastern states. This degree of concentration was even more pronounced 30 years later.

French Canadian immigration was highly concentrated in the New England and other states bordering on Canada (Michigan and Montana). Occupationally, both men and women have tended to concentrate in factory employment, especially in the textile industry. Other Canadians (non French-speaking) display a much more widely dispersed regional pattern of distribution throughout the United States and a wider distribution throughout the general labour force.

Agriculture has attracted rather few first or second generation immigrants from any country, as either farm owners or operators. The groups from Mexico, the Netherlands and Scandinavia are the most "agricultural" of the various immigrant groups.

Cropping and Crop Costs in South West England, 1955. Morris, S. T. and R. C. Rickard. Department of Economics (Agricultural Economics), University of Bristol, Devon, England. April 1957. pp. 85. Price: 2/6.

A review of cropping in southwest England and an analysis of data relating to the 1955 crop year.

American Families. Glick, Paul E., John Wiley & Sons, Inc., New York and Chapman & Hall, Limited, London. 1957. pp. xiv + 240.

Another census monograph prepared "for the Social Science Research Council in co-operation with the U.S. Department of Commerce, Bureau of the Census". This volume presents an analysis of data on family composition, social and economic characteristics of the family, and family formation and dissolution.

The statistical analysis reveals a long-time trend towards smaller households, there being a decline in the median size of the household from 5.4 in 1790 to 4.5 in 1890, 3.3 in 1940 and 3.1 in 1950. Some of the reasons given for this trend are the smaller number of roomers or resident employees in the home; higher marriage rates since 1940; and the decline since 1947 in the percentage of married couples sharing homes with relatives or other persons. However, there is some evidence of a reversal of this trend in that a slight increase in average size of household began in the early 1950's and may continue until 1960 and possibly longer. This will affect the future distribution of family expenditures for housing, schooling, food, etc., and may sharpen the centering of family activities around the social life of the children.

The cycle of participation, by wives, in the labor force is affected by the changing requirements of child care but, for all ages, the proportion of wives in the labor force rose sharply during the 1940's and early 1950's. Because of the increase in the proportion of women with previous work experience the rate of participation in the labor force, by wives during their later years, may be expected to rise in the future.

Of particular interest to the agricultural economist is a statistical table (Table 63, page 97) showing the wide extent to which the money income of the husband varies during the life of the husband among urban, rural non-farm and rural farm families. The figures indicate that the median income is consistently about twice as large in urban areas as on farms, the income in rural non-farm areas occupying an intermediate position. Dr. Glick points out that the "relatively low income figures for the heads of farm families is a result in part of the use of money income, rather than money income plus income in kind, as the unit of measurement".

Alberta Mixed Farm Production Cost Studies, 1951-1955. Costs—Income—Efficiency. Peterson, T. A. and B. J. McBain. Farm Cost Division, Dairy Branch, Alberta Department of Agriculture, Edmonton, Alberta. 1957. pp. 45.

A report on the results of an economic study of 50 mixed farms in the Leduc and Wetaskiwin municipalities for the 5-year period 1951-55.

Models of Man, Social and Rational. Simon, Herbert A. John Wiley & Sons, Inc., New York, 1957. pp. xiv+287.

In the 16 essays published in this volume the author has "tried to set forth a consistent body of theory of the rational and nonrational aspects of human behavior in a social setting". In the five introductory essays on *Causation and Influence Relations* he sets the pattern for his theoretical and mathematical examination of *Social Processes; Motivation; Inducements and Contributions;* and *Rationality and Administrative Decision Making.*

Simon does not and has not to offer any excuse for his coherent mathematical thinking. He does so to avoid the vagueness of verbal treatment but his mathematical thinking does not blur the important questions of substance. He also demonstrates the value of applied mathematics as an efficient research tool in social science.

THE ECONOMIC ANNALIST

A BIMONTHLY REVIEW OF AGRICULTURAL BUSINESS

MARKETING SERVICE, ECONOMICS DIVISION

J. F. BOOTH, Chief

DECEMBER 1957 Vol. XXVII No. 6

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ANNUAL AND MONTHLY INDEX NUMBERS

Wholesale Prices, Farm Prices and Living Cost Indexes

Year and Month	General Whole-sale Price	Wholesale Prices of Canadian Farm Products[a]			Farm Prices of Agricultural Products[b]	Prices of Commodities and Services used by Farmers		Consumer Price		Industrial Production
		Total[b]	Field[b]	Animal		Composite[c]	Equipment and Materials[d]	Total	Food	
	1935–39=100							1949=100		1935–39=100
1913	83·4	...	...	...	...	...	85·4	49·2	44·4	...
1914	85·4	...	...	...	...	85·3	90·2	49·6	46·0	...
1915	91·8	...	...	...	...	91·6	96·9	50·3	46·8	...
1916	109·8	...	...	...	...	100·5	101·7	54·2	51·8	...
1917	148·9	...	...	...	...	140·5	140·7	63·7	66·9	...
1918	166·0	...	...	...	...	160·2	164·1	72·0	76·9	...
1919	174·7	...	...	...	...	167·9	169·1	78·8	82·2	...
1920	203·2	...	...	...	...	186·5	190·1	90·5	94·4	...
1921	143·4	...	...	...	...	152·5	147·4	80·9	72·5	...
1922	126·8	...	...	...	...	134·1	124·6	74·9	61·5	...
1923	127·7	...	...	...	...	130·6	118·3	75·2	61·9	...
1924	129·5	...	...	...	...	131·9	122·3	74·0	60·7	...
1925	133·8	...	...	...	...	131·8	123·2	74·6	63·4	...
1926	130·3	144·4	158·5	130·2	...	130·6	119·9	75·9	66·6	...
1927	127·3	138·6	149·4	127·8	...	131·2	119·9	74·6	65·3	...
1928	125·6	136·3	134·3	138·2	...	129·3	118·3	75·0	65·6	...
1929	124·6	140·8	137·2	144·4	...	127·9	117·6	75·8	67·1	...
1930	112·9	119·5	105·8	133·3	...	117·0	105·6	75·3	65·6	...
1931	94·0	78·9	65·0	92·7	...	100·9	92·2	67·9	51·4	...
1932	86·9	65·5	60·4	70·5	...	93·3	89·3	61·7	42·8	...
1933	87·4	69·3	69·3	69·2	...	89·8	88·8	58·8	42·3	...
1934	93·4	83·5	80·5	86·5	...	95·5	96·8	59·6	46·2	...
1935	94·4	89·2	84·4	94·1	88·0	95·4	95·6	59·9	47·2	85·6
1936	96·8	97·9	102·2	93·7	96·9	98·1	98·7	61·1	48·8	94·6
1937	107·7	117·4	128·9	106·0	119·7	105·3	108·4	63·0	51·4	108·0
1938	102·0	102·9	100·9	104·8	105·0	101·7	101·2	63·7	51·7	102·0
1939	99·2	92·6	83·7	101·5	91·8	99·3	95·7	63·2	50·2	109·7
1940	108·0	96·1	85·4	106·7	96·8	106·8	101·8	65·7	52·6	131·4
1941	116·4	106·6	88·9	124·4	110·2	116·1	107·8	69·6	57·9	164·8
1942	123·0	127·1	109·7	144·6	133·1	131·6	119·2	72·9	63·4	195·7
1943	127·9	145·4	129·0	161·8	157·8	143·4	122·4	74·2	65·2	208·5
1944	130·6	155·3	144·5	166·1	172·4	148·0	126·0	74·6	65·5	212·4
1945	132·1	166·4	162·5	170·2	185·7	152·1	125·9	75·0	66·3	187·2
1946	138·9	179·5	177·9	181·2	204·1	157·0	128·0	77·5	70·0	171·9
1947	163·3	192·2	184·1	200·2	215·8	170·4	139·5	84·8	79·5	187·8
1948	193·4	232·1	200·6	263·7	255·8	197·6	173·1	97·0	97·5	196·3
1949	198·3	228·7	191·9	265·4	255·4	204·1	180·3	100·0	100·0	199·6
1950	211·2	236·7	191·9	281·4	260·8	210·4	189·9	102·9	102·6	211·5
1951	240·2	268·6	200·4	336·9	296·8	230·0	206·0	113·7	117·0	226·5
1952	226·0	250·2	223·0	277·5	274·4	243·1	215·8	116·5	116·8	233·0
1953	220·7	221·6	179·4	263·8	250·4	234·8	207·4	115·5	112·6	248·4
1954	217·0	213·6	170·9	256·2	236·8	237·2	203·3	116·2	112·2	244·6
1955	218·9	209·7	174·4	245·1	232·7	238·3	204·6	116·4	112·1	265·8
1956	225·6	210·2	173·5	246·9	231·0	247·6	208·8	118·1	113·4	284·4
1957	...	...	...	...	...	...	...	...	...	...
1957										
Jan	229·4	211·6	166·0	257·2	227·7	247·0	212·3	120.3	117.1	291·1
Feb	228·4	210·1	161·3	259·0	228·1	...	...	120·5	117·2	292·0
Mar	228·4	206·8	160·2	253·4	225·0	...	...	120·5	116·4	290·9
April	228·4	207·5	159·9	255·1	224·6	258.6	212.0	120·9	116·7	287·8
May	228·0	206.4	157.5	255·3	224·7	...	...	121·1	116.7	286·9
June	228·0	208.4	154.6	262·2	226·5	...	...	121·6	117.7	284·1
July	228·2	212·7	155·1	270·2	229·8	...	...	121·9	118·2	285·2
August	227·6	212·6	153·8	271·3	230·3	257·6	209·7	122·6	120·2	283·3
Sept	226·7	208·5	153·2	263·8	228·3	...	...	123·3	121·9	281·8
Oct	224·8	200·7	152·8	248·6	222·5	...	...	123·4	121·7	278·4
Nov	224·0	199·7	153·7	245·7	...	...	...	123·3	120·2	...
Dec	...	204·7	155·1	254·4	...	...	...	123·1	118·8	...

Source:—Dominion Bureau of Statistics, Ottawa.

(a) Prices at terminal markets.

(b) Indexes August 1955—July 1956 include final barley and oats payments announced November 15 and 29, 1956.

(c) Exclusive of living costs. Includes farm implements, building materials, gasoline, oil, greases, feed, fertilizer, binder twine, seed, hardware, tax rates, interest rates and farm wage rates.

(d) Differs from composite index by exclusion of tax rates, interest rates, and farm wage rates.

THE ECONOMIC SITUATION

The Trade Situation.—In an address to the Canadian Exporters' Association, at the Seigniory Club, Montebello, Que., on October 22, 1957, the minister of Trade and Commerce made the following comments on Canada's trade situation.

> Probably the most significant change in Canada's external position in the post-war period has been the increased concentration of trade with the United States at the expense of the United Kingdom and the rest of the Commonwealth. The physical volume of trade with the United Kingdom and with the Commonwealth as a whole has risen moderately since pre-war but has not kept pace with the rise in total trade or with Canada's expansion generally. On the other hand the volume of goods flowing to and from the United States has increased more than three-fold since pre-war—more rapidly even than national output. Trade with the United States now comprises nearly 60 per cent of Canada's total exports and 73 per cent of total imports. The corresponding shares for the whole of the Commonwealth have declined to about 20 per cent for exports and 12 per cent for imports. The United Kingdom which two decades ago was Canada's largest customer now buys less than one-third the value of goods purchased by the United States.
>
> This shift in the geographic pattern of Canada's trade reflects the peculiar circumstances of the post-war period. Both Canada and the United States emerged from World War II with productive capacities unimpaired and with production running well above pre-war levels. After a brief reconversion period over-all output in both countries forged ahead rapidly. Rising industrial output in the United States brought a more than proportionate growth in requirements for industrial materials from Canada. Likewise the rapid expansion of the Canadian economy has been accompanied by increased dependence on imports, with the United States the principal source of supply.
>
> On the other hand for the United Kingdom and other European countries, the post-war transition was more difficult and prolonged. The war-time loss of traditional earnings from overseas investments and from shipping, together with the severe dislocation in export industries, left the United Kingdom actually short of foreign exchange with which to purchase necessary imports. Scarcity of materials in turn hindered the recovery of production and it was not until the latter part of 1947 that industrial production reached the pre-war level.
>
> At this period, just when the United Kingdom's recovery was becoming significant the shift in Canada's trade to the United States was beginning to gain momentum.
>
> There are certain aspects of this increased concentration of trade with the United States which bear close attention. One such aspect is Canada's mounting trade deficit with her neighbour to the south. Since 1954 imports from the United States have increased more than twice as much as exports to that country leaving a merchandise deficit for 1956 of about 1.2 billion dollars. Adding to this amount net payments for interest, dividends and other invisible items given an over-all negative balance or current transactions of close to 1⅔ billion dollars.
>
> Much of this deficit has been incurred to purchase investment goods needed for expansion in industries destined to produce for the United States market or for new capacity which will replace imports from that country. Fulfilment of these expansion plans should therefore help to close the trade gap. Nevertheless, insofar as the Canadian economy is likely to go on expanding, import requirements will remain heavy and may continue to out-run exports for a long time to come.

The purchase of a larger share of these expanding import requirements from overseas sources would help to strengthen the external positions of overseas countries and, in so doing, would buttress Canada's overseas markets. Since the United States does not suffer from balance of payments difficulties a reduction in Canada's surplus with overseas countries at the expense of a deficit with the United States should have no adverse effects on markets in the United States. Moreover, such a course of action, by strengthening the weaker partners in the Western trading orbit, would lend firmness to the trading structure of the whole Western World to the advantage of all members of this partnership.

Prices.—Canada's consumer price index moved only from 123.3 to 123.4 between September and October 1957; in October 1956 the index stood at 119.8. In October this year a decline in the food index from 121.9 to 121.7 was not quite sufficient to balance increases in the other four component groups.

Substantially lower prices were reported for pork, and slighter declines for beef, most fresh and canned fruits and vegetables, margarine, coffee and eggs. These declines were partially offset by higher prices for milk in some cities, butter, cereal items, tomatoes and oranges.

The shelter index rose from 135.6 to 135.9 as a result of continued increases in the rent and home-ownership components. Price increases for new seasonal lines, particularly women's and girls' winter coats, were largely responsible for moving the clothing index from 108.3 to 108.7.

A rise in the household operation index from 119.8 to 120.1 reflected scattered increases in fuel, floor coverings, household supplies and appliances.

The fuel index was affected by higher prices for coal and lower prices for fuel oil in parts of eastern Canada. Continued general increases in fees for doctors, dentists and optometrists and higher prepaid health care rates in the Maritime provinces moved the "other" commodities and services index from 127.1 to 127.4.

The composite price index of commodities and services used by farmers (1935-39=100) moved only from 240.6 to 241.0 between April and August 1957: the index stood at 236.0 in August 1956. The composite index, exclusive of farm family living, dropped from 258.6 in April 1957 to 257.6 in August 1957 but rose from 255.9 in August 1956.

The index of farm wage rates moved up to a new peak of 526.4 in August 1957 from 523.9 in April and 512.5 in August 1956. The eastern index rose to 503.4 from 498.6 in April and 495.6 in August 1956; the western index dropped slightly to 559.0 from 559.9 in April but rose from 536.6 in August 1956.

Mainly as a result of lower prices for feed and seed, the index for farm equipment and materials declined 1.1 per cent to 209.7 between April and August. Declines were noticeably larger for these series in eastern Canada. Among other groups, advances occurred in hardware, compounded fertilizer, and farm machinery and gasoline, oil and grease. Binder twine remained steady at 223.7 and building materials registered slight declines.

The all-Canada farm family living component rose from 213.5 in April to 216.0 in August. The August 1957 figure exceeded the comparable figure of 206.2 for August 1956 and slightly exceeded the previous postwar peak of 215.8 reached in January 1952.

Index numbers of farm prices of agricultural products rose slightly in August 1957 to an estimated 230.3 from 229.8 in July but was below the 231.9 figure for August 1956. Compared with a year previously, lower prices for grains, potatoes, poultry and eggs more than counterbalanced higher prices for livestock and dairy products.

FARMING IN THE ROCKY MOUNTAIN TRENCH OF BRITISH COLUMBIA[1]

D. C. CROSSFIELD

In 1956 the Economics Division conducted a farm business study of 105 farms in the Rocky Mountain Trench area of British Columbia. The purpose of this study was to make an evaluation of comparative returns among different types of farms. Complete records were taken of the farm operations for the calendar year 1955. The 105 farms visited were classified into seven farm types, namely: 24 beef, 13 dairy, 16 mixed livestock, 20 mixed crop and livestock, six other crops and livestock, ten off-type and 16 part-time farms. This classification was based on the sources of gross farm returns.

DESCRIPTION OF THE STUDY AREA

The study area is located in the southeast portion of the province known as the East Kootenay and extends from the 49th parallel in a north-northwesterly direction to Golden, a distance of about 200 miles. This portion of the trench is a long narrow longitudinal depression varying from three to 17 miles in width. Both sides of the valley proper are bounded by very prominent mountain ranges, the Rockies in the east and Purcells on the west. That portion of the Elk River Valley which is covered by this study consists of an area extending 30 miles north of Natal, the widest point being three miles.

At the northern end of the area around Golden the valley or trench is quite narrow in some places, sloping off gradually and in others more sharply to the rugged mountains on both sides. Most of the valley floor from Golden to Canal Flats is composed of swamp and is not suitable for agricultural production in this state. Agricultural enterprises are carried on on the bench lands well above the river at an altitude of about 3,000 feet.

The southern portion of the area is more open and the land bordering on the Kootenay River is a rolling plain scarred by the erosion of some rivers which flow into the Kootenay River. The trench becomes more open as it extends farther south. The mountains (Purcells) on the west become less prominent rounded-off forested hills. The elevation in the southern area is also about 3,000 feet.

The Elk River Valley is situated between two mountain ranges and is very narrow throughout. It is to the east of the Rocky Mountain Trench proper.

Drainage.—The area has two main drainage outlets. Around the Canal Flats the lay of the land is such that the Kootenay River flows south and the Lake District drains to the north, this being the headwaters of the Columbia River system.

The Kootenay River enters the trench at Canal Flats from the east and is fed by some fairly large rivers along its route. Rivers in the vicinity of Canal Flats also contribute to its flow. Farther south the St. Mary River from the west and the Bull River from the east enter and at the extreme south the Elk River from the east flows into the Kootenay.

North of Canal Flats the Columbia River has its origin in Columbia and Windermere Lakes. Many small rivers and creeks flow into the Columbia, increasing its size so that when it reaches Golden it is quite large.

There are very few lakes in the area which drain into the two systems. St. Mary and Premier Lakes are the main lakes draining into the south and a few small lakes drain into the northern route.

Runoff is quite rapid because the runoff water flows over frozen ground in the spring. Very little penetration and consequently little leaching of soils takes place. In the more humid areas of the Elk River Valley and various areas north of Canal Flats there is more soil saturation and thus more soil leaching. The greatest penetration of moisture for the whole area occurs from thundercloud action which is usually heaviest in the month of June.

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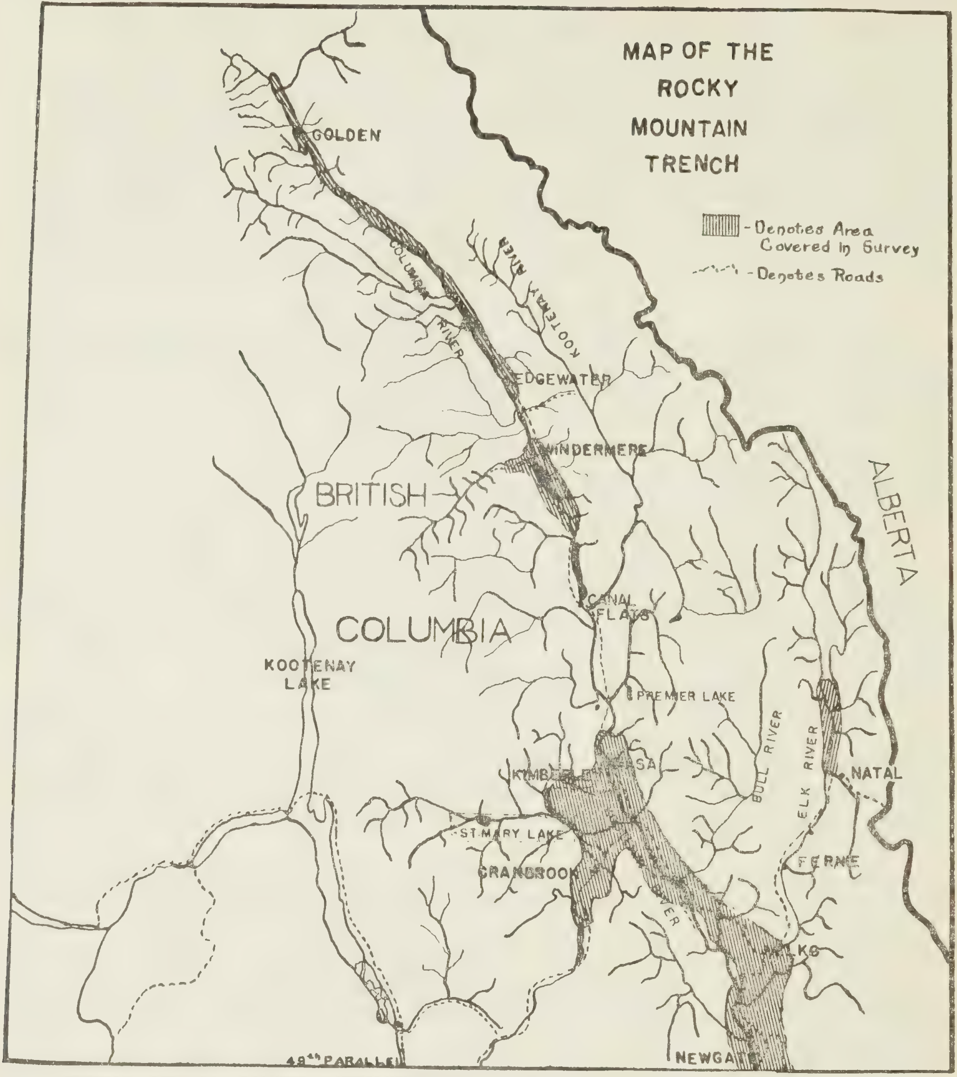
[1] The first in a series of three articles.



Soils.—Soil development in the Rocky Mountain Trench and Elk River Valley began at the time of the deglaciation period. The extent to which actual development has taken place in these areas depends of course on the parent material and the influencing conditions to which it has been subjected. Climate, vegetation, drainage and relief and biological activity are the main influences exerted. The underlying feature is that the whole area is of a glacial parent material, relatively new and of a strong to weakly calcareous nature. The soils are classified into eight soil groups, namely: dark brown, grey wooded, brown wooded, podzolized grey wooded, brown podzolic, soil complex, groundwater or organic and recent alluvial. Differences in soil types depend on variations in stages of development.

Since the soils under study are intermixed and in a great range of various stages of development, the use of soil texture will be employed where needed as a means of classification. A very broad use of soil groups will be used. The three classes, according to soil texture, will be: class 1, fine to medium; class 2, medium; class 3, coarse. The soils will also be classified as brown and ground-water soils and grey and soil complex.

Climate.—The Kootenay River Valley is considered as a semi-arid region having an annual precipitation of about 14 inches. Because of its elevation it is not as warm and dry as other more arid regions of the province. The climate of the upper Columbia Valley is somewhat more humid than that of the Kootenay Valley; precipitation is heavier, and temperatures do not rise as high.

Since the whole trench lies in a north-south direction it is subject to the cold air masses from the north in the winter and the hot air masses from the south in the summer, which gives rise to a wide annual temperature range. Because of the low humidity the cold air masses in the spring, early summer and early fall cause frost. This is especially so in the southern part of the trench. Temperatures have ranged from a low of −42°F. to a high of 100°F.

Growing Season.—The growing season varies greatly from year to year due again to fluctuations in temperature caused by the movement of polar masses. Table 1 shows that the longest growing period is at Newgate which has 192 days, followed by Cranbrook with 180 days. These two districts are in the south. Fernie has the shortest period with 168 days; elevation here is 3,305 feet. Golden and Invermere, with an elevation of 2,583 feet and 2,650 feet respectively, have a growing period of 174 days. The growing season can be further complicated by low humidity. As the cold air masses move in, the lack of moisture-laden air hastens frosts. Should the surrounding air have moisture sufficient to absorb the cold air mass a frost is averted and the growing period may be extended.

Table 1.—Growing Periods and Frost-Free Periods, Rocky Mountain Trench, British Columbia, 1955

Area	Days temp. above 43°F.	Date temp. rises above 43°F.	Date temp. falls below 43°F.	Nearest parallel and meridian	Years observed	Elevation	Average frost-free period 32° days
Golden	174	April 18	October 9	51° 116	37	2,583	96
Invermere	174	April 18	October 9	50° 116	36	2,650	108
Cranbrook	180	April 15	October 12	49° 115	35	3,014	77
Newgate	192	April 9	October 18	49° 115	24	2,800	93
Fernie	168	April 23	October 8	49° 115	25	3,305	98

Source: *Climates of British Columbia for Agrologists.*—Technical Communication, Agronomy Department, University of British Columbia.

Precipitation.—Because of the fast runoff in the spring, growth largely depends on the early summer rains. Thunder clouds enter the trench from gaps in the Purcell Range, follow definite routes and then enter the Rockies. The storm patterns can be tracked by the more dense vegetation and leaching of soils. Two of the main storm paths enter from the Purcells, one flowing north and south of Waldo crosses over the trench and enters the Rockies at Elko or Bull River and the other enters from the St. Mary cut and travels south to enter the Rockies at Bull River or north to enter at Canal Flats.

The Elk River Valley has much heavier precipitation, the average rainfall at Michel being 22.5 inches. As stated before the over-all average precipitation for the Rocky Mountains approximates 14 inches but there are wide variations from this average.

The average rainfall in the irrigation season, May to September is 5.55 inches at Newgate, 8.72 at Elko, 11.22 at Fernie, 6.29 at Cranbrook, 6.36 at Kimberley Airport, 6.31 at Wasa and 7.44 inches at Canal Flats. No figures are available for the areas north of Canal Flats.

These figures show the moisture deficiency of soils in a region which requires from 12 to 18 acre-inches of water for adequate irrigation.

Vegetation.—Most of the Rocky Mountain Trench area under study was originally covered by forest, with grassland prominent in some districts, but the original stand of trees has been logged off and regeneration has been very slow. At present there are two general types of cover, forest and natural grassland, with an intermingling of the two. The most prominent tree from the 49th parallel to Canal Flats is the Yellow or Bull Pine which occupies the hot dry areas like Rampart and Waldo. There is some Douglas Fir, its growth depending on the moisture belt. North of Canal Flats forest cover is more dense, fir and spruce becoming more prominent. Some larch grows and is quite evident between Cranbrook and Kimberley where the three, larch, pine and fir, are seen together. Engleman spruce is seen where there are more advantageous moisture conditions.

Vegetation is generally not dense and most of the forest is open with a grass cover. In the creek and river bottoms deciduous trees, mainly cottonwood, alder, aspen and willow grow in quantity.

The natural grasses have practically all been eliminated by overgrazing. Blue bunch grass was the most prominent natural grass in the area. Inferior grasses have taken over, rough or Idaho fescue being the most abundant. In the south, around Tobacco Plains, needle or downy brome grass is the prominent type of grass. Skookumchuk Prairie north of Wasa carries a variety of inferior plants; this again is the result of overgrazing. Sage brush and cactus are not found in the Trench. The river bottoms contain alkali grasses and rushes. There are also poisonous grasses to contend with. Further to the north into the Lake District and up to Golden the picture is much the same; poor quality grasses have taken over.

AGRICULTURE

Generally speaking agriculture in the Rocky Mountain Trench lends itself to a type of farming based on grazing. Variations from this are around the larger centres of population where dairy and some vegetable growing tend to be more lucrative. In some isolated districts like Windermere, potato and potato seed production are practiced.

The cattle population has reached its limit as far as the carrying capacity of the range is concerned. Further development in irrigation and a more rigid control of grazing practices is necessary to allow any appreciable increase in herd numbers. All available land for grazing has been taken up.

The agricultural area of the Trench is comprised of about 150,000 acres of occupied farm land (Table 2), of which 43,983 acres, or 29 per cent of the total farm land, was covered in the study. The farm population comprises 2,275 or 8.2 per cent of a total population of 27,628. There are 541 farm operators in the area.

The approximate value of all the livestock and crop production in the Rocky Mountain Trench is noted in Table 3.

Table 2.—Improved Acres, Unimproved Acres, Total Farm Area, Average Size of Farm, Average Improved and Unimproved Acres per Farm, Rocky Mountain Trench, British Columbia, 1955

—	1941	1951
Improved acres	26,683	38,644
Unimproved acres	121,097	112,148
Total farm area	147,780	150,792
Improved acres as a per cent of total farm area	18.1	25.63
Average size of farm	194	256
Average improved acres per farm	35	66
Average unimproved acres per farm	159	190

Source: *Census of Canada, Agriculture*, 1941 and 1951, Dominion Bureau of Statistics.

Table 3.—Approximate Value of Livestock and Crop Production, Rocky Mountain Trench, British Columbia, 1955

Commodity	Value
	$
Beef	637,000
Dairy	494,000
Vegetables and potatoes	211,000
Poultry	192,000
Forage	50,000
Swine	37,000
Sheep	9,000
Seed	16,000
Grain	13,000

Source: *Ninth B.C. Natural Resources Conference*, Agriculture Section.

IRRIGATION

The flood and furrow type of irrigation is practiced on most farms, but some use is also made of sprinkler systems.

The supply of water for the furrow type of operation is usually diverted from a creek or pond at a higher altitude than the area to be irrigated and fed to the area by gravity from a series of open gravelly ditches and flumes. Where flooding is used the land is irrigated naturally or artificially in the spring. The sprinkler systems are supplied from ponds or backwashes in creeks. Fourteen operators used complete sprinkler systems, 53 used furrow or furrow and flood, six used a combination of the above mentioned systems and 32 did not irrigate their land. Thirty-two farmers operated without irrigation.

The annual operating cost for irrigation on all farms was $2,819 (Table 4).

The total acreage covered by irrigation, for crop production, was 3,094 acres (Table 5). Irrigated pasture covered 81.5 acres; hayland including grain for hay was the largest acreage covered, comprising 2,697 acres or 90 per cent of the total acreage covered; 236 acres of grain and 79.5 acres of other crops were irrigated. Fifty-one per cent of all the cropland acreage harvested was under irrigation (Table 6). Eighty-four per cent of all potatoes harvested was irrigated and 46 per cent of the total acreage in hay or grain for hay was irrigated. There was no commercial potato production on farms not using irrigation. The small acreages of fruit, vegetables and forage seed were totally irrigated.

Irrigation started about the first week in May and usually ended in the latter part of August. Some farmers prolonged the period into September.

Table 4.—Use of Irrigation on 105 Farms, Rocky Mountain Trench, British Columbia, 1955

Type of irrigation	Number of farms	Operating cost
Furrow and flood	53	1,295
Sprinkler	14	750
Combination of furrow and flood and sprinkler	6	774
No irrigation used	32	—
Total, all farms	**105**	**2,819**

Table 5.—Crops and Irrigated Acres on 73 Farms Reporting, Rocky Mountain Trench, British Columbia, 1955

Crops irrigated	Acreage
Hay[a]	2,697
Grain	236
Other[b]	79.5
Pasture	81.5
Total	**3,094**

a) Includes grain for hay.

b) Includes potatoes, turnips, other vegetables, oats for silage, grain sheaves, fruit, orchard grass.

TRANSPORTATION

The trench area is served by the Kettle Valley Railway in the south, running east and west and passing through Cranbrook. A north and south branch line connects all the main points from Elko to Golden. The main line of the Canadian Pacific Railway runs through Golden giving access to the northern end. An airline service operates out of Cranbrook six days a week.

Roads are constructed on much the same routes north-south and east-west. Main arterial roads connect with their counterparts in Alberta and west to the coast, and south into the United States. Trucking and bus services are readily available along these routes.

Operators had to travel an average of ten miles to ship their produce, the distance ranging from a low of six miles for the dairy operators to a high of 15 miles for the mixed crop and livestock operators. Most roads were considered to be from fair to good.

MARKETING

The principal market outlets were primarily all local, except for the beef industry and for small movements of hogs, sheep, cream, fruit, potatoes (including seed) and wool.

Table 6.—Per Cent of Cropland Irrigated (Based on Harvested Acreages), by Soil Class (Texture), Irrigated and Non-Irrigated, Rocky Mountain Trench, 1955

—	Fine to medium		Medium		All irrigated	All N-I	All, fine to medium	All, medium	All, coarse	Not mapped	All soils
	I	N-I	I	N-I							
					— per cent —						
CROP:											
Wheat	60	—	84.2	—	72.7	—	2.3	73.4	61.3	—	14.5
Barley	100	—	55.7	—	63.5	—	25.4	32.6	—	—	30.2
Oats	91.4	—	61.7	—	70.7	—	58.6	50.3	80.0	—	55.1
Orchard grass seed	100	—	—	—	100	—	100	—	—	—	100
Mixed grass hay	26.8	—	43.1	—	44.6	—	26.8	33.3	—	30.6	30.0
Mixed grass and legume hay	77.7	—	79.0	—	79.3	—	60.7	58.9	59.9	—	58.2
Alfalfa hay	66.5	—	89.7	—	81.7	—	51.1	82.3	59.3	—	67.2
Grain hay	67.4	—	47.7	—	55.6	—	42.4	36.4	—	—	37.2
Grain sheaves	—	—	100	—	100	—	—	46.7	—	—	33.3
Oats silage	42.9	—	100	—	60.0	—	42.9	100	—	—	60.0
Potatoes	91.9	—	18.2	—	84.5	—	91.9	18.2	—	—	84.5
Turnips	30.6	—	—	—	30.6	—	30.6	—	—	—	30.6
Other vegetables	100	—	—	—	100	—	100	—	—	—	100
Fruit/Apples	—	—	100	—	100	—	—	100	—	—	100
All harvested cropland	72.1	—	74.3	—	74	—	43	57.1	53.5	17.6	50.9
Number of farms	32	13	37	15	73	32	45	52	5	3	105

I. stands for *Irrigated* and N.-I. for *Non-Irrigated*.

Table 7.—Market Outlets for Farm Products, Rocky Mountain Trench, British Columbia, 1955

Market	Grain and hay	Cattle	Hogs and weaners	Sheep	Poultry	Whole milk	Cream	Butter and eggs	Fruit	Potatoes	Vegetables	Wool
	— percentage —											
Local a)	100	40	78	40	100	100	50	100	66	76	100	—
Calgary b)	—	52	22	60	—	—	42	—	34	—	—	40
Lethbridge	—	8	—	—	—	—	8	—	—	—	—	60
B.C., Alberta and Washington	—	—	—	—	—	—	—	—	—	24	—	—

a) Includes co-operatives, retail stores, other farmers, feed companies, buyers, dairies, butchers, mine and saw mill camp stores, wholesalers and consumers.

b) Includes Pincher Creek.

Table 7 provides a description of the market outlets for products, and of their relative importance.

Of the 100 operators who sold beef 40 per cent sold it locally and 60 per cent sold it either to the Calgary or to the Lethbridge stockyards. Seventy-one per cent of the shippers who shipped locally and 85 per cent of those who shipped to Calgary and Lethbridge said that the market outlets were adequate[1].

Fluid milk shipping is entirely local and 86 per cent of the shippers were satisfied with the market outlet.

Of 23 hog and weaner shippers 78 per cent sold locally, and only one said that the market outlet was not adequate.

Ninety per cent of the potato producers shipped locally and of these 98 per cent were satisfied with market outlets, as well as the remaining ten per cent who shipped out of the trench.

Of the 13 cream shippers 54 per cent shipped locally; 57 per cent of the local shippers considered the markets to be adequate.

Eighty-six per cent of the other commodities produced were shipped to the local market and 89 per cent of the shippers of these commodities considered the market to be adequate.

There is an increasing tendency in the Golden area for dairy producers to ship cream instead of fluid milk because of their inability to supply whole milk on an all-year round basis. For this reason some have gone out of business in the last few years.

THE FARM OPERATOR, HIS FAMILY AND LAND TENURE

Ninety-nine per cent of the operators owned or held deeds to their farms and only one per cent rented their farms. Of the 105 farms, 85 per cent were purchased before December 31, 1950.

Ninety per cent of the farmers expressed the desire for full-time farming. The average age of operators was 49 years and ranged from a low of 43 years in the dairy type operation to a high of 56 years in the other crop and livestock enterprise. Fourteen years was the average length of occupancy per farm, ranging from a low of 11 years on part-time farms to a high of 17 years on the beef type farms. The average family comprised about three or four individuals, including the operator, his wife and children living on the farm. The average improved acreage at time of purchase was 37 acres and the average unimproved acreage totalled 290 acres. Seventy-two per cent of the farms had buildings on them at the time of purchase. Only 16 per cent of the 105 farms were equipped with telephones and 50 per cent with available electricity. Ninety-six per cent had radios.

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[1] Does not take price or cost of shipping into consideration.

FARM ORGANIZATION AND RESOURCE PRODUCTIVITY IN SOME BEEF PRODUCING AREAS OF ALBERTA

W. DARCOVICH

PART I—BEEF PRODUCTION FARMS IN ALBERTA[1]

Mixed farms and ranches are the most important primary or pasture producers of beef in Alberta. Mixed farms are far from homogeneous in organization; they may be divided into two main types, farms with low and farms with high cattle population intensities. Ranches can be similarly divided, the Foothills ranches being classed as high intensity and the Prairie ranches as low intensity types[2]. The secondary form of beef production or finish feeding on grain of grass-produced cattle, occurs on most of the farms in the mixed farming areas but has become more highly specialized in the irrigated area of the province.

Mixed Farms.—The park belt of Alberta lies to the north and west of the prairie belt and is characterized mainly by mixed farming or some combination of grain and livestock production. There are also some straight grain and specialized dairy farms and, on the periphery, some pioneer farms. Most of the latter are on degraded black or grey soils and therefore not strictly in the park belt, though many of them tend to develop into the mixed farm type in their more mature stages[3].

Mixed farms in the park belt are not of a homogeneous type of organization and vary in the proportions of cash grain and livestock which they produce. On some, wheat and coarse grains are grown as cash crops and livestock is produced as a side line. These are the low intensity or grain-livestock farms, as livestock contributes the lesser share of cash income. The grain-livestock farms are generally located in areas where moisture, soil or other conditions are favorable to wheat as a first crop after fallow, and to oats and barley as second and third crops in the rotation. Cattle production is confined mostly to native pastures, a limiting feature since their acreage tends to be small. Coarse grains are generally sold for cash and this practice acts as a barrier to the development of an intensive hog production. However, hog production could be increased considerably should coarse grain or hog prices become more favorable[4]. On other park belt farms livestock production, rather than grain, contributes the major share of farm income. These farms are the high intensity or livestock-grain farms[5], they are seen wherever environmental conditions are less favorable to wheat production and more favorable to coarse grains and tame grass, and in turn to cattle and hogs.

That part of the Peace River country of Alberta which is classified as park area[6] contains many grain-livestock mixed farms. Climatic and soil conditions here are very favorable to wheat; the climate is also favorable to grains, and soil and other conditions are favorable to forage seed production. Much of the unimproved land is still in bush so that there is little native pasture for cattle, and their production is further hindered by long and extreme winters, by the scarcity of water[1] and by long distances from markets. An economic study of 120 farms, in this area, showed that the average size of farm was 393 acres, including 59 acres of wheat and other cash crops, 33 acres of alfalfa and forage seed, 74 acres of coarse grains, 30 acres of fallow and breaking, nine acres of tame hay and 188 acres of unimproved land (Table 1).

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[1] The first in a series of two articles. Part II, the second article, will be concerned with the "Production Function Analysis" of the beef enterprise.

[2] Most of the data used in this article come from three studies, namely, a study of the feedlot enterprise in the irrigated areas in the vicinity of Lethbridge, a study of mixed farms in the Olds-Carstairs area, and a study of ranching in the Foothills. These data are supplemented by information from two studies made for other purposes, one in the Peace River area and the other in the Shortgrass ranch area of Saskatchewan (Conditions on the Prairie ranches of Saskatchewan are assumed to be similar to those prevailing on the Prairie ranches of Alberta).

[3] Alberta Forage Crop Advisory Committee, *Hay and Pasture Crops for Alberta*, Pub. No. 63, Reprinted June 1954, pp. 4-6.

[4] Since most of the coarse grains sold for cash in the Prairie Provinces goes for feed to Eastern Canada, an increase in hog production in the Prairies would result in some reduction in Eastern Canada. In the long run, hog production could be expanded in both areas with an increase in the coarse grains acreage on the Prairies.

[5] Lane G. A. and J. G. Carson, *Type of Farming Areas, Alberta*, Canada Department of Agriculture, Ottawa, April, 1956.

[6] Dawson C. A. and R. W. Murchie, *The Settlement of Peace River Country*, The Macmillan Company of Canada Limited, Toronto, 1934, pp. 23-25.

The Olds-Carstairs area is considered to be representative of the livestock-grain type of mixed farm. Conditions for wheat production are not too favorable as moisture tends to be excessive, frost and hail occur frequently and weeds are abundant; grass and livestock production are thus favored. According to a study of 72 farms made in this area in 1953, the average size of farm was 522 acres of which 158 acres were unimproved; 52 acres were in wheat and other cash crops, 151 acres in oats and barley and 63 acres in tame hay and pasture. There were 98 acres of fallow of which 19 were in cover crops.

Table 1.—Land Use and Livestock Numbers, Peace River and Olds-Carstairs Areas, Alberta, Summer of 1953

—	Peace River area, grain-livestock farms		Olds-Carstairs area, livestock-grain farms	
	—acres—	—per cent of total—	—acres—	—per cent of total—
Land use[a]				
Wheat	59[b]	15	52[f]	10
Forage seed	33[c]	8	—	—
Oats and barley	74	19	151[g]	29
Tame hay and pasture	9[d]	2	63[h]	12
Fallow and breaking	30[e]	8	98[i]	19
Unimproved	188	48	158	30
Total farm area	393	100	522	100
Livestock numbers	Head[k]		Head[m]	
	per farm	per 100 acres	per farm	per 100 acres
Cattle	13[l]	3	69[n]	13
Hogs	14	4	52	10

[a] Farmstead included in unimproved area.

[b] Includes 6 acres of flax and 2 acres of other crops.

[c] Includes 27 acres of alfalfa seed and 6 acres of other forage seed.

[d] Includes 2 acres of greenfeed, 4 acres of tame hay and 3 acres of tame pasture.

[e] Includes 6 acres of breaking and one acre of idle land.

[f] Includes 8 acres of rye and 1 of flax.

[g] Includes 4 acres in mixed grain.

[h] Includes 19 acres of greenfeed, 13 acres of tame pasture and 31 acres of tame hay.

[i] Includes 2 acres of breaking and 19 acres of cover crop sown on fallow.

[k] Sum of ending inventory in August 1953 and sales for the previous year.

[l] Includes about 9 head of cattle, 1 sheep and about 3 horses.

[m] Average of inventory, November 1953 and May 1954 and sales for six months before each inventory.

[n] Includes 64 head of cattle, 1 sheep and about 4 horses per farm.

Besides over-all size and forage seed production, the main difference between the two farm types is in their cattle and hog capacities. On a "per 100 acres" basis, the Olds-Carstairs farms had 13.2 head, compared with 3.2 head on Peace River farms, or about four times as many; hog numbers were

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[1] This difficulty is being overcome by provincial governmental assistance in the construction of dugouts.

10.0 and 3.6 head, respectively, or about three times as many. The greater cattle capacity of the Olds-Carstairs area is due to its higher acreage of native and tame pasture, and its greater yield of sward; its higher capacity for hogs is due mainly to the smaller cash sales of coarse grain.

There is another difference between the two farm types which is not shown by the data in Table 1. The Olds-Carstairs farms do considerably more feeding of cattle during the winter than the Peace River farms, a condition owing to the availability of greater supplies of feed grains on the Olds-Carstairs farms. Although some of the larger enterprises purchase their feeders most farmers tend to feed only their home-produced cattle. A greater amount of feeding increases the quality of output and is also an additional reason for the greater cattle capacity of the Olds-Carstairs farms.

These livestock capacities represent the extremes of the mixed farm types in the park belt. In a large area to the east, northeast, and partly to the northwest of Edmonton, conditions for grain production tend to be less favorable than in the Peace River area; grain-livestock farms still predominate but they tend to have a higher cattle intensity than those in the Peace River area. On the other hand, in the park belt to the east of the Calgary-Edmonton line conditions are less favorable to livestock than west of this line and, on the whole, livestock intensity tends to be lower than in the Olds-Carstairs areas.

Pioneer farms are found in the northern and western periphery of the park belt and on the fringe of the Peace River area. They differ from the adjacent mixed farms in being on degraded black or grey soils and generally at an earlier stage of development. In a typical pattern, pioneer farms must be self-sufficient and provide a living for the operator and his family; and cattle, hogs and chickens are kept for this purpose. The pioneer farmer also needs capital to develop his farm. The cattle enterprise is usually the first to be developed to a small commercial herd size as its capital requirements are low; some wild pasture is nearly always available and wild hay and rough buildings can be put up at little expense. For larger herds the capital requirements tend to rise sharply and this favors the development of cropland, which also gives a quicker return. For this reason, as farmers develop from a pioneer to a commercial stage, the proportion of total receipts from livestock tends to decrease and stabilize at some level characteristic of the area[1].

Farm development on grey soils may differ somewhat from this typical pattern. Cash crops may be stressed in the first few years because of the quick returns which they provide but for sustained production the grey soils must be put into a rotation, with heavy emphasis on forage crops and cattle. In their mature stages these farms are likely to develop a much higher concentration of cattle than mixed farms on adjacent park land. Soil and climatic conditions are also favorable to the production of forage and of alfalfa seed on the pioneer farms; their production may also prevail on a more mature type of farm organization. But this type of development cannot be expected to be large, because of the small over-all demand for forage and alfalfa seed and of alternative sources of supply both within and outside the province[2].

Ranches.—In Alberta ranching occurs in several fairly distinct zones[3]. In the Foothills zone, moisture conditions are semi-humid to humid, and the area is near the source of numerous creeks and rivers which provide a water supply for stock. Rolling topography precludes most land uses other than grazing, though enough land is cultivated to provide feed for wintering. The latter requirements tend to be low as the area is situated in the chinook zone which allows considerable winter grazing. In the Cypress Hill zone, range conditions with respect to climate, precipitation, cover, livestock carrying capacity, and water facilities are mostly similar to those in the foothills.

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[1] Dawson and Murchie, op. cit., pp. 133-134. However, the absolute returns from the livestock enterprise can increase.

[2] Some alfalfa and forage seed production occurs in the irrigated areas and in the Peace River area where climatic and other conditions are favorable to seed setting.

[3] Vrooman, C. W. et al, *Cattle Ranching in Western Canada*, Canada Department of Agriculture, Economics Division, February 1946, pp. 9-13. The authors describe four ranch zones in Alberta, namely: the Shortgrass or Prairie, Cypress Hills, Northern Prairie and Foothills zones. Sometimes the Shortgrass or Prairie zone is split into two types, namely: the Shortgrass proper and the Mixed Prairie. The latter is a transitional zone between the Shortgrass proper and the Foothills zones.

Ranching in the Prairie zone occurs where moisture or other conditions preclude wheat production. The moisture supply is also very variable, and along with uncertain chinook winds this necessitates the keeping of large feed reserves for wintering. The supply of water for stock is also a problem as the grazing areas can be a long way from rivers, creeks and lakes. Ranching occurs also to the north of the true Prairie zone, in an area known as the Northern Prairie zone. Its range conditions are mostly a cross between those of the Prairie and Foothills zones and in its northern and western parts ranching begins to merge with mixed farming.

Table 2.—Land Use, Livestock Numbers and Cattle Sales on Foothills and Prairie Ranches

—	Foothills area, 36 ranches		Prairie area, 25 ranches[d]	
	—acres—			
Land use[a]				
Native hay and pasture[b]	5,298		14,212[e]	
Tame hay and pasture	249		228	
Crops	89		164	
Bare fallow	42		164[f]	
Cover crop on fallow	28		—	
Total size of ranch	5,706[c]		14,768	
Cover crop leased	22		—	
Livestock numbers	—head—		—head—	
Cattle	518[g]		563[i]	
Horses[h]	15		19	
Sheep[h]	4		1	
Animal units[j]	442		467	
Acres per animal unit	13		32	
Cattle sales	—head[k]	per cent	—head—	per cent
Calves	11	9	35	26
Yearlings	28	23	45	34
Two year olds, cows, bulls	84	68	55	40
Total	**123**	**100**	**135**	**100**

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[a] October 1954 for Foothills ranches and October 1953 for Prairie ranches.

[b] Includes area in ranch buildings.

[c] Includes 3,047 acres of deeded land, 867 of leased land and an estimate of 1,792 acres for off-ranch grazing.

[d] Includes 15 Mixed prairies and 10 Shortgrass prairie ranches in Saskatchewan.

[e] Includes an estimate of 318 acres for off-ranch grazing.

[f] Summerfallow acreage not recorded; this estimate assumes all crops grown on fallow.

[g] Animals pastured during the summer. Includes closing inventory in October 1954 of 325 mature animals and 126 calves, and sales during summer and fall of 1954 of 67 head.

[h] October 1954 and 1953 inventories for Foothills and Prairie ranches respectively.

[i] Closing inventory in October 1953 of 299 head mature animals and 129 calves. Sales for the year of 135 head are added.

[j] Mature animals and horses at 1.0 animal unit each, calves at 0.3 and sheep at 0.25 animal unit.

[k] Sales for six months before and six months after the October 1954 inventory; these sales differ therefore from those in footnote "g" above.

Some of the important differences between Foothills and Prairie ranches are shown in Table 2. The prairie ranches are about three times as large in total area as those in the foothills, or 14,768 in comparison with 5,706 acres. Since their carrying capacity is almost one-third of that of the foothills ranches, 32 in comparison with 13 acres needed per head, the total animal units carried on prairie ranches is only slightly larger or 467 head in comparison with 442 head. The higher carrying capacity of Foothills ranches is due to the more humid moisture conditions with increased sward cover; in addition, the high moisture level makes possible the production of some cover crops, either on ranches themselves or on adjoining wheat farms.

Another important difference is in the type of animals marketed. Prairie ranches market a greater proportion of young animals (calves and yearlings) and a lesser proportion of older animals, a condition which is likely due to greater physical and price uncertainty in the Foothills district. The production of older animals requires the wintering of calves, and on prairie ranches these do not winter well, because of their poorer gains during the summer and more severe winters; older animals are also heavier and less able to withstand price declines. The ranchers' protective measure against these uncertainties is to market young animals. In the Foothills, cover crop pasture and large summer gains in weight lead to a better wintering of the young stock. Many animals may qualify as "two-way" cattle and there is a greater chance of selling them as feeders or directly for slaughter; these conditions provide a hedge against the greater price uncertainty of longer-term production.

Finish Feeding.—Finish feeding allows the production of better quality beef and more flexibility in output. Without finish feeding ranchers and other grass producers sell mostly calves, long yearlings and long two-year olds, with production periods of about 18, 30 and 42 months in length. Finish feeding can add three more stages; if calves, long yearlings or long two-year olds are put into the feedlot in the fall, they will be sold as yearlings, two-year olds or three-year olds the following spring, with production periods of about 24, 36 and 48 months in length. Adding finish feeding to grass production reduces the interval between production stages from 12 to six months, increases the possible production stages from three to six, and extends the over-all production period from 42 to 48 months.

Greater flexibility makes for more efficient output under conditions of uncertainty; it can also reduce uncertainty itself by reducing the over-all length of the production period, if the effect of finish feeding is to put younger animals into the feedlot.

Much of the finish feeding of cattle in Alberta depends on the splitting up of the complete production process between the producer who raises animals on grass and the feeder who buys these animals and finishes them in a feedlot on grain and other feeds. Finish feeding of this type occurs in areas of surplus feed grains and other feeds and where there is a scarcity of grass-produced cattle; the advantage of splitting the production process lies in the economies of moving the cattle to the feed rather than vice versa. An associated economy is a greater degree of specialization than if grass and finish feeding production are integrated.

Table 3 describes the feedlot enterprise in the irrigated areas surrounding Lethbridge, during the year 1952-53. Stocker and feeder steers and heifers were generally bought from the surrounding ranchers in the late fall and along with some home-raised animals, were put into feedlot on December 1, after two to four weeks of pasture on sugar beet tops. The average feeder fed 91 head of cattle, which represented an investment of $11,763. The feeding period lasted 157 days and during this time the average gain was 272 pounds per head. Besides the capital tied up in feeders and the feed itself, 1,102 hours of labor, 614 hours of equipment use and $1,746 of building investment were required for the enterprise.

Since they are still growing, calves are considered to be the most efficient feeders, yearlings second best and two-year olds third best[1]. Of the 91 feeders on feedlot (Table 3) 48 per cent were two-year old and over, 33 per cent were yearlings and 19 per cent were calves. The younger animals require greater care in feeding, and this is of particular importance for the inexperienced feeder. These animals also utilize grain more efficiently than roughage and this favors the feeding of heavier animals whenever roughage is abundant.

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[1] Whiting, F. *Feedlot Finishing of Cattle and Sheep in the Irrigated Areas of Southern Alberta.* Canada Department of Agriculture, Ottawa, April 1947, p. 13.

Farmers also have to comply with price uncertainty; the older and heavier animals are less able to withstand price declines, but the increase in price uncertainty may be more than offset by the longer feeding period of the younger animals. This longer period furnished a possibility for hedging against a price decline. However most feeders are unable to take advantage of this possibility; they need cash and a long feeding period usually interferes with other farm operations[1].

Table 3.—The Finish Feeding Enterprise, 72 Farms, Irrigated Areas in the Vicinity of Lethbridge, Alberta, 1952-53

Feeders in feedlot—number of head[a]		91
Value of feeders in feedlot—dollars[b]		11,763
Value of buildings for beef feeding—dollars[c]		1,746
Labor requirement—hours		1,102
Equipment use—hours		614
Date in feedlot		Dec. 1, 1952
Length of feeding period—days[d]		157
Beginning weight—pounds per head		759
Gain—pounds per head		272
Feed requirements per head		
Wet beet pulp—tons		3.0
Beet tops—tons		0.4
Roughage—tons		0.64
Grain—bushels		32.1
Kinds of animals in feedlot[e]	Numbers per farm	Per cent of total
Calves	17	19
Yearlings	30	33
Two-year olds[f]	44	48
Total	**91**	**100**

[a] Number at date of putting into feedlot. About 14 of these animals were home grown. An average of 1.7 animals died from accident or disease while in feedlot.

[b] Average beginning weight multiplied by $17.00 per cwt. This is the price for good and common stocker and feed steers at Calgary for October 1952 less freight to the farm.

[c] Replacement value.

[d] Average is weighted by the number of animals in each period.

[e] Based on weight when put into feedlot. Calves up to 500 pounds, two-year olds 800 pounds and over, yearlings over 500 and under 800 pounds.

[f] Includes one cow.

Some finish feeding also occurs on mixed farms, particularly in the Edmonton-Calgary area, and also elsewhere. On most of these farms finish feeding is an integrated process, as the animals selected for feeding are raised on the farm. On other farms the home-raised animals are supplemented by purchased feeders and in some cases these purchases are quite extensive. Where the number of feeders is small the existing barns provide sufficient facilities and no feedlot is needed.

Some Implications.—The foregoing is not a complete description of the organization of mixed farms, ranches or the finish feeding enterprise, as important aspects such as capital and financial structure, cultural and feeding practices, and technological developments have not been considered. Nevertheless, the analysis of the data draws attention to certain basic patterns or types of beef-producing units.

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[1] Ibid., pp. 13-16.

Because of inherent differences in output conditions, beef production on mixed farms can be divided into two broad categories, those where livestock production is the major and those where it is a minor enterprise, or into livestock-grain and grain-livestock farms respectively. Secondary production occurs on both types but tends to be more prevalent on the livestock-grain farms, owing to the greater availability of feed grains. This description of mixed farms in Alberta can also be generalized to include the farms of Saskatchewan and Manitoba, in areas where production conditions are about similar.

The ranching areas and feedlot enterprises are the primary and secondary types of specialization, respectively, in beef production. On the basis of carrying capacity, the ranches, like the mixed farms can be divided into two main types, the high intensity type or the Foothills ranches, and the low intensity type or the Prairie ranches, each with a somewhat different cattle marketing pattern. The Foothills ranches are unique to Alberta, but the Prairie ranches extend to Saskatchewan. The organization of the highly commercial, highly specialized feedlot enterprise in the irrigated areas can hardly be compared with other feedlot enterprises in the province or elsewhere in Canada. It is unique, both in regard to the supply of feeders which are obtained from nearby ranchers, and in the supply of feed which is obtained from production in irrigated areas.

TIME AND MACHINERY REQUIREMENTS FOR CROP PRODUCTION IN THE RED RIVER VALLEY AREA OF MANITOBA

S. W. Garland and L. M. Johnson

Data on some of the inputs utilized in crop production in Manitoba were secured and assembled from reports on farm business studies made in the province during the last five years. This article draws from these data in an attempt to describe the use and type of machinery inputs on farms in the Red River Valley area. For the sake of comparability and consistency, all costs have been calculated on the basis of average 1956 prices.

Table 1.—Time Required and Costs of Machinery for Summerfallow Operations, Red River Valley, Manitoba

Operation	Acres per hour	Times over	Hours per acre	Total cost per acre		
				Machine	Tractor	Total
					— dollars —	
		— Sequence A —				
Plow (3-14 in)	1.2	1	.83	.40	1.02	1.42
Disker (12 ft.)	4.5	1	.22	.16	.25	.41
Cultivator (12 ft.)	4.0	3	.75	.39	.84	1.23
Drag harrow (36 ft.)	10.0	2	.20	.06	.24	.30
Total			**2.00**			**3.36**
		— Sequence B —				
Oneway (8 ft.)	3.0	2	.66	.42	.82	1.24
Cultivator (12 ft.)	4.0	3	.75	.39	.84	1.23
Drag harrow (36 ft.)	10.0	2	.20	.06	.24	.30
Total			**1.61**			**2.77**

The soils of the Red River Valley of Manitoba are fertile Blackearth soils of fine texture and good depth, and free of stones. Because of the very flat topography flooding and drainage are recurrent problems. Considering 29.5°F. as the critical temperature for frost injury to crops, the frost-free period ranges from 130 to 140 days. Precipitation averages about 20 inches per year with about 9.5 inches falling in the months from April to July and 6.0 inches from August to October.

Grain farms predominate but there are some dairy farms close to Winnipeg. Crops such as corn, sunflowers, sugar beets, and alfalfa, are grown on a fairly small acreage.

The one-half section farm is the most common size of farm. About 94 per cent of the land is improved. Wheat occupies about 27 per cent of the cultivated land, oats 17 per cent, barley 24 per cent, and summerfallow 22 per cent. The remainder is in such crops as flax, forage and special crops. The common seeding rates per acre are 1.5 bushels for wheat, 2.5 bushels for oats, 1.5 bushels for barley and 35 pounds for flax. The long-time annual average yield is about 20 bushels per acre for wheat, 32 bushels for oats and 24 bushels for barley. The most common crop rotation is a four-year rotation of summerfallow, wheat, and two years of coarse grains. The second most common rotation is a three-year rotation of summerfallow, wheat, coarse grains.

Almost all farmers use chemical weed killers on wheat, oats, barley and flax. Recent studies show that about 15 per cent of the farmers use fertilizer on some of their crops. Although it is not a recommended practice some farmers burn the straw and stubble after combining a heavy crop. Most of the land is fall-tilled at least once.

The following tables show the most common tillage and harvesting operations for the common crops, the time required, and the machinery costs in the area. On the fine-textured soils the draft of tillage machinery is heavier than in most other areas of the province. On the one-half and three-quarter section farms the 3-4 plow tractor is the most common size, about 60 per cent of the farms having a two plow or 2-3 plow size as a second tractor. The smaller tractor is used for swathing and spraying.

Table 2.—Time Required and Costs of Machinery for Pre-harvest Operations, Wheat, Oats, Barley on Summerfallow, Red River Valley, Manitoba

Operation	Acres per hour	Times over	Hours per acre	Total cost per acre		
				Machine	Tractor	Total
					— dollars —	
PRE-SEEDING:						
Cultivator (12 ft.)	4.0	2	.50	.26	.56	.82
Drag harrow (36 ft.)	10.0	1	.10	.03	.12	.15
SEEDING AND POST-SEEDING:						
Drill (14 ft.)	4.5	1	.22	.24	.27	.51
Drag harrow (36 ft.)	10.0	2	.20	.06	.24	.30
Spray (30 ft.)	9.0	1	.11	.08	.10	.18
Total			1.13			1.96

The tillage practices and sequences shown for this area are based on data from a survey made in 1952. The two most common sequences of tillage operations on summerfallow are shown in Table 1.

When wheat, oats, or barley are grown on summerfallow the same general tillage practices are used. The typical operations are shown in Table 2.

There are two sequences of tillage operations commonly used when wheat is grown on land that was in crop the previous year. These are shown in Table 3.

Table 3.—Time Required and Costs of Machinery for Pre-harvest Operations, Wheat on Stubble, Red River Valley, Manitoba

Operation	Acres per hour	Times over	Hours per acre	Total cost per acre		
				Machine	Tractor	Total
				— dollars —		
	— Sequence A —					
PRE-SEEDING:						
Plow (3–14 in.)	1.2	1	.83	.40	1.02	1.42
Disker (12 ft.)	4.5	2	.44	.32	.50	.82
Drag harrow (36 ft.)	10.0	1	.10	.03	.12	.15
SEEDING AND POST-SEEDING:						
Drill (14 ft.)	4.5	1	.22	.24	.27	.51
Drag harrow (36 ft.)	10.0	2	.20	.06	.24	.30
Spray (30 ft.)	9.0	1	.11	.08	.10	.18
Total	....	....	1.90	....	....	3.38
	— Sequence B —					
PRE-SEEDING:						
Disker (12 ft.)	4.5	1	.22	.16	.25	.41
Cultivator (12 ft.)	4.0	2	.50	.26	.56	.82
Drag harrow (36 ft.)	10.0	1	.10	.03	.12	.15
SEEDING AND POST-SEEDING:						
Drill (14 ft.)	4.5	1	.22	.24	.27	.51
Drag harrow (36 ft.)	10.0	2	.20	.06	.24	.30
Spray (30 ft.)	9.0	1	.11	.08	.10	.18
Total	....	....	1.35	....	....	2.37

Table 4.—Time Required and Costs of Machinery for Pre-harvest Operations, Oats and Barley on Stubble, Red River Valley, Manitoba

Operation	Acres per hour	Times over	Hours per acre	Total cost per acre		
				Machine	Tractor	Total
				— dollars —		
	— Sequence A —					
PRE-SEEDING:						
Plow (3–14 in.)	1.2	1	.83	.40	1 02	1.42
Disker (12 ft.)	4.5	2	.44	.32	.50	.82
Drag harrow (36 ft.)	10.0	2	.20	.06	.24	.30
SEEDING AND POST-SEEDING:						
Drill (14 ft.)	4.5	1	.22	.24	.27	.51
Drag harrow (36 ft.)	10.0	2	.20	.06	.24	.30
Spray (30 ft.)	9.0	1	.11	.08	.10	.18
Total	....	....	2.00	....	....	3.53
	— Sequence B —					
PRE-SEEDING:						
Disker (12 ft.)	4.5	1	.22	.16	.25	.41
Cultivator (12 ft.)	4.0	2	.50	.26	.56	.82
Drag harrow (36 ft.)	10.0	2	.20	.06	.24	.30
SEEDING AND POST-SEEDING:						
Drill (14 ft.)	4.5	1	.22	.24	.27	.51
Drag harrow (36 ft.)	10.0	2	.20	.06	.24	.30
Spray (30 ft.)	9.0	1	.11	.08	.10	.18
Total	....	....	1.45	....	....	2.52

Table 5.—Time Required and Costs of Machinery for Pre-harvest Operations, Flax on Stubble, Red River Valley, Manitoba

Operation	Acres per hour	Times over	Hours per acre	Total cost per acre		
				Machine	Tractor	Total
				— dollars —		
	— Sequence A —					
PRE-SEEDING:						
Plow (3–14 in.)	1.2	1	.83	.40	1.02	1.42
Disker (12 ft.)	4.5	1	.22	.16	.25	.41
Cultivator (12 ft.)	4.0	2	.50	.26	.56	.82
Drag harrow (36 ft.)	10.0	2	.20	.06	.24	.30
SEEDING AND POST-SEEDING:						
Drill (14 ft.)	4.5	1	.22	.24	.27	.51
Drag harrow (36 ft.)	10.0	1	.10	.03	.12	.15
Spray (30 ft.)	9.0	1	.11	.08	.10	.18
Total			**2.18**			**3.79**
	— Sequence B —					
PRE-SEEDING:						
Disker (12 ft.)	4.5	2	.44	.32	.50	.82
Cultivator (12 ft.)	4.0	2	.50	.26	.56	.82
Drag harrow (36 ft.)	10.0	2	.20	.06	.24	.30
SEEDING AND POST-SEEDING:						
Drill (14 ft.)	4.5	1	.22	.24	.27	.51
Drag harrow (36 ft.)	10.0	1	.10	.03	.12	.15
Spray (30 ft.)	9.0	1	.11	.08	.10	.18
Total			**1.57**			**2.78**

Table 6.—Time Required and Costs of Machinery for Pre-harvest Operations, Sunflowers on Stubble, Red River Valley, Manitoba

Operation	Acres per hour	Times over	Hours per acre	Total cost per acre		
				Machine	Tractor	Total
				— dollars —		
	— Sequence A —					
PRE-SEEDING:						
Plow (3–14 in.)	1.2	1	.83	.40	1.02	1.42
Disker (12 ft.)	4.5	1	.22	.16	.25	.41
Drag harrow (36 ft.)	10.0	3	.30	.09	.36	.45
SEEDING AND POST-SEEDING:						
Drill (14 ft.)	3.9	1	.26	.24	.27	.51
Drag harrow (36 ft.)	10.0	2	.20	.06	.24	.30
Cultivator (2 row)	2.3	3	1.29	.16	.39	.55
Total			**3.10**			**3.64**
	— Sequence B —					
PRE-SEEDING:						
Cultivator (12 ft.)	4.0	2	.50	.26	.56	.82
Drag harrow (36 ft.)	10.0	2	.20	.06	.24	.30
SEEDING AND POST-SEEDING:						
Drill (14 ft.)	3.9	1	.26	.24	.27	.51
Drag harrow (36 ft.)	10.0	2	.20	.06	.24	.30
Cultivator (2 row)	2.3	3	1.29	.16	.39	.55
Total			**2.45**			**2.48**

Table 7.—Time Required and Costs of Machinery for Harvesting Operations, Wheat, Oats, Barley, Flax, on Summerfallow or Stubble, Red River Valley, Manitoba

Operation	Acres per hour	Times over	Hours per acre	Total cost per acre		
				Machine	Tractor	Total
					— dollars —	
		— Sequence A —				
Swather (12 ft.)	4.8	1	.21	.21	.19	.40
Combine (12 ft. S.P.)	3.0	1	.33	2.32	...	2.32
Total	...	...	**.54**	...	...	**2.72**
		— Sequence B —				
Swather (12 ft.)	4.8	1	.21	.21	.19	.40
Combine (12 ft. A.M.)	2.8	1	.35	1.61	.44	2.05
Total	...	...	**.56**	...	...	**2.45**

When oats and barley are seeded on land that was in crop the previous year seeding is often delayed to allow for extra tillage to control weeds. The time required in their production is greater than for wheat.

Flax is most commonly grown on land that has been in crop the previous year. The relatively clean seed-bed required for this crop is made possible by extra pre-seeding cultivation. Two typical sequences of tillage operations used in preparing a seed-bed for flax are shown in Table 5.

Sunflowers are one of the special crops grown in this zone in recent years. Two typical sequences of tillage operations used in their production are shown in Table 6. The 2-3 plow tractor is used for after-seeding cultivation.

Table 8.—Time Required and Costs of Machinery for Harvesting Operations, Sunflowers, Red River Valley, Manitoba

Operation	Acres per hour	Times over	Hours per acre	Total cost per acre		
				Machine	Tractor	Total
					— dollars —	
Combine (12 ft. S.P.)	3.2	1	.31	2.18	—	2.18
Combine (12 ft. A.M.)	3.0	1	.33	1.50	.41	1.91

The "swather and combine" is the harvesting method most frequently used on farms in this area. The 12-foot self-propelled combine and the 12-foot auxiliary motor pull-type are both common. The comparative costs of combining grains with these combines are illustrated in Table 7. There is very little difference in the per acre costs of harvesting wheat, oats, barley and flax. The ordinary combine is modified for sunflower harvesting by the addition of simple and fairly low cost attachments. The attachments are a solid reel, that is, one with the space between the reel slats filled in, and pans protruding in front of the cutting bar. The pans fill the space between the rows and straighten up the stalks, making cutting easier. Table 8 summarizes the data on costs of combining sunflowers.

DOMINION-PROVINCIAL AGRICULTURAL STATISTICS CONFERENCE

The 1957 annual Dominion-Provincial Agricultural Statistics Conference was held in Ottawa, December 2, 3 and 4.

FARM POPULATION, FARM NUMBERS AND FARM SIZE

Canada's farm population continued to decline in the period from 1951 to 1956 but the total farm area remained almost the same, according to a Dominion Bureau of Statistics report on the national census of 1956 ("1956 Census: Agriculture, Bulletin A-4"). The size of the average farm greatly increased and mechanization and electrification went forward at a rapid pace.

The number of persons living on farms decreased from 2,911,996 in 1951 to 2,746,755 in 1956. This decrease—165,241 or 5.7 per cent—was larger, proportionally, than the 240,453 or 7.6 per cent decrease in the ten-year interval between 1941 and 1951. The decreases from 1951 to 1956 were largest in Saskatchewan (37,242), Quebec (27,297), and New Brunswick (20,938), but all provinces contributed to the total decrease.

The total number of occupied farms decreased 7.7 per cent from 623,091 in 1951 to 575,015 in 1956 but the total area in farms decreased only 0.1 per cent from 174,046,654 to 173,923,691 acres. The average size of farm for all Canada thus increased from 279.3 acres in 1951 to 302.2 in 1956. Saskatchewan had the highest average acreage per farm—607.3 acres—an increase of 57 over the 1951 average. In Alberta the increase was from 527.3 to 578.8 acres per farm.

PUBLICATIONS OF THE ECONOMICS DIVISION

Marketing Boards Under Provincial Legislation, Canada 1957. Dunbabin, Margaret I. and W. E. Walker. Ottawa. July 1957. pp. iii + 78.

A bulletin designed "to show the nature and extent of marketing powers exercised in Canada by boards operating under provincial law. There are two types of legislation which are clearly distinguishable; those which authorize the organization of producer marketing boards to operate schemes proposed and approved by producers and those which seek to regulate fluid milk marketing, where the boards are government appointed and the degree of producer participation in organization and operation is smaller".

The bulletin is divided into two main parts: *Producer Marketing Legislation* and *Milk Control Legislation.*

Breakfast Bacon, Consumer Acceptance of Grade A Lean Bacon. The Economics Division and the Livestock and Livestock Products Division, Marketing Service. Ottawa, July 1957. pp. 15.

A report on a series of studies initiated in 1953 to determine the value and feasibility of making selected lean bacon available to consumers.

Canada and the United States Tariffs on Selected Agricultural Products. Compiled by Margaret I. Dunbabin. Ottawa. August 1957. pp. 18

A revised edition of the bulletin published in March 1957. It provides comparative figures of tariff rates on imports of major agricultural products into Canada and the United States.

The Use of the Aerial Photo in the Change of Land Use in Southwestern Saskatchewan. Philpotts L. E. Ottawa. August 1957. pp. 21 + maps and appendix.

A technical report concerned with the use of aerial photography in portraying and interpreting changes in land use.

1956-1957 Supplement to Federal Agricultural Assistance Programs, Canada, 1945-1956. Cameron, Marjorie R. Ottawa, September 1957, pp. 112-140.

This supplement extends the chronological outline of federal agricultural assistance to farmers. It includes a brief summary of new assistance programs and notes on developments relating to older programs.

Credit Unions in Canada, 1956. Perreault, Roger. Ottawa, October 1957, pp. 21. A report on activities in the credit union field in Canada in 1956.

OTHER PUBLICATIONS

The Costs of Rearing Single Suckled Calves. Brown, A. Department of Agricultural Economics, School of Agriculture, University of Nottingham—Sutton Bonnington, Loughborough, England. September 1956, pp. 19. 2/-.

This report deals with *"the costs of rearing single suckled calves to weaning and of maintaining a breeding cow over its dry period"*. It also supplies *"a comparison of the costs of rearing calves by different methods"* and details and costs *"of suckling two calves per cow where both cows and calves are out at grass"*.

Annual Report of Co-operative Extension Services, Department of Co-operation and Co-operative Development of the Province of Saskatchewan for the Year Ended March 31, 1956. Regina, Saskatchewan 1957. pp. 27.

This official report adds to the value of its review of activities for the 1955-56 fiscal year, by supplying a succinct analysis of the operations of co-operative farms, co-operatives for the use of farm machinery, and grazing, fodder and fur co-operatives. The various sections of the report deal with *Co-operative Extension Services; Production Co-operatives; Co-operative Development in the North; Co-operative Education;* and *Co-ordination.*

Location and Space-Economy. Isard, Walter. Published jointly by the Technology Press of Massachusetts Institute of Technology and John Wiley & Sons, Inc., New York. 1956. pp. xix + 350.

In this book, Walter Isard, one of the world's leading location theorists attempts, with considerable success,

> to improve the spatial and regional frameworks of the social science disciplines, particularly of economics, through the development of a more adequate general theory of location and space-economy.

Isard's book is assured of a high rank among the classics on location theory—Johann H. von Thünen's "Der isolierte Staat"; Alfred Weber's "Theory of Location of Industries"; August Losch's "Die raumliche Ordnung der Wirtschaft"; Bertil Ohlin's "Interregional and International Trade"; Tord Palander's "Beiträge zur Standortstheorie"; and others.

Isard's theoretical presentation is so replete with analytical demonstrations that it baffles the reviewer's desire to offer a succinct appraisal of it. One must thus content himself with listing the chapter headings: *Introduction: Posing the Location and Regional Problem; Some General Theories of Location and Space-Economy; Some Empirical Regularities of the Space-Economy; Transport Inputs and Related Spatial Concepts; The Locational Equilibrium of the Firm: Transport-Orientation; The Locational Equilibrium of the Firm: Labor and Other Orientation; Market and Supply Area Analysis and Competitive Locational Equilibrium; Agglomeration Analysis and Agricultural Location Theory; Some Basic Interrelations of Location and Trade Theory; Aspects of General Location Theory: A Mathematical Formulation;* and *Partial Graphic Synthesis and Summary.*

A Farmer's Guide to Incentive Schemes. Strong, W. M. Department of Economics (Agricultural Economics), University of Bristol, Devon, England. March 1957. pp. 30.

This report deals with one method of "getting the best out of labour—the payment of wages by methods intended to increase the usefulness of workers employed". It discusses certain aspects which have been stressed in discussions with some farmers in Dorset who have had experience with incentive schemes.

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